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THE
LONDON ENCYCLOPÆDIA.

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THE LONDON ENCYCLOPÆDIA.

LINE, n. s.

LIN'EAGE, n. s.

LIN'EAL, adj.

LIN'EALLY, adv.

LIN'EAR, adj.

LIN'EATION, n. s.

Fr. line; Lat. linea. The path of a mathematical point: extension longitudinally; limit: hence sketch; outline; marks or features of the hand or

face; contour; an extended thread or string; family, ascending or descending; and, particularly, the equinoctial circle; a rank, or disposition, of soldiers; a trench, or work, in fortification; as much as is written, or printed, from margin to margin in a book or manuscript; a verse; a measure of extension, containing one-tenth of an inch: lineage is race; progeny; family: lineal, containing or composed of lines; in direct descent; hereditary: lineally, in a direct line: lineal, composed of lines: lineation, lineal form; draught of a line, or lines.

And it hadde a wall greet and high hauynge welue ghasit, and in the ghasit of it twelue aungelis and names writen yn that ben the names of twelue magis of the sones of Israel. *Wiclif. Apoc. xxi.*

Their line is gone out through all the earth; and their words to the end of the world. *Psalm xix. 4.*

Joseph was of the house and lineage of David.

Luke.

O Conqueror of Brut's Albion!

Whiche that by lynce and fre election

Ben very kinges. *Chaucer. Unto the Kinge.*

Let calle thyn trewe frendes alle, and thy lineage, which that ben wise, and telleth to hem your cas, and herkeneth what they saye in counseilling, and overne you aftir hir sentence. *Id. Cant. Tales.*

Both the lineage and the certain sire

From which I sprung, from me are hidden yet.

Spenser.

I shall have good fortune; go to, here's a simple one of life; here's a small trifle of wives.

Shakespeare.

Long is it since I saw him, but time hath nothing blurred those lines of favour which then he wore.

Id.

He chid the sisters.

When first they put the name of king upon me, and bade them speak to him; then, prophet-like, they hailed him father to a line of kings.

Queen Isabel, his grandmother,

Was lineal of the lady Ermengere.

Peace be to France, if France in peace permit us just and lineal entrance to our own.

Id.

(Knowledge) A climbing height it is, without a head,

depth without bottom, way without an end;

circle with no line environed,

not comprehended, all it comprehends,

orth infinite, yet satisfies no mind

ill it that infinite of the Godhead find.

Sir Fulke Greville.

The Tirsan cometh forth with all his generation or lineage, the males before him, and the females following him; and, if there be a mother from whose body

the whole lineage is descended, there is a traverse where she sitteth.

Bacon.

Here, while his canting drone-pipe scanned

The mystic figures of her hand,

He tipples palmestry, and dines

On all her fortune-telling lines.

Claveland.

When the sun below the line descends,

Then one long night continued darkness joins.

Creech.

If he had been the person upon whom the crown had lineally and rightfully descended, it was good law.

Clarendon.

Eden stretched her line

From Auran eastward to the royal towers

Of great Seleucia. *Milton's Paradise Lost.*

His empire, courage, and his boasted line,

Were all proved mortal.

Roscommon.

Well sung the Roman bard; all human things,

Of dearest value, hang on slender strings;

O see the then sole hope, and in design

Of heaven our joy, supported by a line.

Waller.

Victorious with their lines and eyes,

They make the fishes and the men their prize. *Id.*

You have generous thoughts turned to such speculations; but this is not enough towards the raising such buildings as I have drawn you here the lines of, unless the direction of all affairs here were wholly in your hands.

Temple.

We as by line upon the ocean go,

Whose paths shall be familiar as the land.

Dryden.

Now snatch an hour that favours thy designs, Unite thy forces, and attack their lines.

Id.

A golden bowl

The queen commanded to be crowned with wine,

The bowl that Belus used, and all the Tyrian line.

Id.

O that your brows my laurel had sustained!

Well had I been deposed if you had reigned:

The father had descended for the son;

For only you are lineal to the throne.

Id.

Men of mighty fame,

And from the immortal gods their lineage came.

Id.

To re-establish, de facto, the right of lineal succession to paternal government, is to put a man in possession of that government which his fathers did enjoy, and he by lineal succession had a right to.

Locke.

A line seldom holds to strain, or draws straight in length, above fifty or sixty feet.

Moxon.

The years

Ran smoothly on, productive of a line

Of wise heroic kings.

Philips.

In moving lines these few epistles tell

What fate attends the nymph who loves too well.

Garth.

The real lineage and succession of wit is plainly founded in nature.

Shaftesbury.

No longer shall the widowed land bemoan

A broken lineage, and a doubtful throne,

But boast her royal progeny's increase,

And count the pledges of her future peace.

Addison.

B

They pierce the broken foe's remotest lines. *Id.*

The soul, considered with its Creator; is like one of those mathematical lines that may draw nearer to another for all eternity without a possibility of touching it: and can there be a thought so transporting, as to consider ourselves in these perpetual approaches to him, who is not only the standard of perfection, but of happiness! *Addison.*

When any thing is mathematically demonstrated weak, it is much more mechanically weak; errors ever occurring more easily in the management of gross materials than *linear* designs. *Wotton.*

Where-ever it is freed from the sand stone, it is covered with *linear* strim, tending towards several centers, so as to compose flat stellar figures. *Woodward on Fossils.*

There are in the horney ground two white *lineations*, with two of a pale red. *Woodward.*

Even the planets, upon this principle, must gravitate no more towards the sun; so that they would not revolve in the curve lines, but fly away in direct tangents, till they struck against other planets. *Bentley.*

Oh lasting as those colours may they shine,
Free as thy stroke, yet faultless as thy line! *Pope.*

In the preceding line, Ulysses speaks of Nausicaa, yet immediately changes the words into the masculine gender. *Broome.*

There is a sort of masonry in poetry, wherein the pause represents the joints of building, which ought in every line and course to have their disposition varied. *Shenstone.*

To dote on aught may leave us, or be left,
Is that ambition! then let flames descend,
Point to the centre their inverted spires,
And learn humiliation from a soul
Which boasts her lineage from celestial fire. *Young.*

A poet does not work by square or line,
As smiths and joiners perfect a design;
At least we moderns, our attention less,
Beyond the example of our sires digress,
And claim a right to scamper and run wide,
Wherever chance, caprice, or fancy guide. *Cowper.*

Nor less amazed, that such a blot
His noble 'scutcheon should have got,
While he was highest of his line. *Byron.*

LINE, *v. a.* } From LINEN, which see; or
LIN'ING, *n. s.* } Lat. *linum*. To cover inside;
to guard or protect within; place within; double;
impregnate: a lining is an inward covering or guard.

Her women are about her: what if I do line one
of their hands? *Shakspeare. Cymbeline.*

Line and new repair our towns of war
With men of courage, and with means defendant. *Shakspeare.*

Son of sixteen,
Pluck the lined crutch from thy old limping sire. *Id.*

Who lined himself with hope,
Eating the air on promise of supply. *Id.*
The lining of his coffers shall make coats
To deck our soldiers for these Irish wars. *Id.*

The two armies were assigned to the leading of two generals, both of them rather courtiers, and assured to the state, than martial men; yet lined and assisted with subordinate commanders of great experience and valour. *Bacon.*

The charge amounteth very high for any one man's purse, except lined beyond ordinary, to reach unto. *Carew.*

Let no man tell me now of that just wonder of the world, the Jewish temple; white marble throughout, lined with gold within. *Bp. Hall.*

Thus from the Tyrian pastures lined with Jove,
He bore Europa, and still keeps his love. *Creech.*
Notwithstanding they had lined some hedges with musqueteers, they were totally dispersed. *Clarendon.*

Was I deceived, or did a sable cloud
Turn forth her silver lining on the night? *Milton.*

A box lined with paper to receive the mercury that might be spilt. *Boyle.*

The fold in the gristle of the nose is covered with a lining, which differs from the facing of the tongue *Grew's Cosmologia.*

The gown with stiff embroidery shining,
Looks charming with a slighter lining. *Prior.*

He, by a gentle bow, divined
How well a cully's purse was lined. *Swift.*
Nor name nor title, stamped behind,
Adorns its outer part;
But all within 'tis richly lined,
A magazine of art. *Cowper.*

LINE, EQUINOCTIAL. See ASTRONOMY.

LINE, GUNTER'S, a logarithmic line, usually graduated upon scales, sectors, &c. It is also called the line of lines, and line of numbers; being only the logarithms graduated upon a ruler, which therefore serves to solve problems instrumentally in the same manner as logarithms do arithmetically. It is usually divided into 100 parts, every tenth of which is numbered, beginning with 1 and ending with 10: so that if the first great division, marked 1, stand for one-tenth of an integer, the next division, marked 2, will stand for two-tenths, 3 for three-tenths, and so on; and the intermediate divisions will in like manner represent 100th parts of the same integer. If each of the great divisions represent ten integers, then will the less divisions stand for integers; and, if the greater divisions be supposed each 100, the subdivisions will be each ten. 1. To find the product of two numbers. From 1 extend the compasses to the multiplier; and the same extent, applied the same way from the multiplicand, will reach to the product. Thus, if the product of 4 and 8 be required, extend the compasses from 1 to 4, and that extent laid from 8 the same way will reach to 32, their product. 2. To divide one number by another. The extent from the divisor to unity will reach from the dividend to the quotient: thus, to divide 36 by 4, extend the compasses from 4 to 1, and the same extent will reach from 36 to 9, the quotient sought. 3. To three given numbers to find a fourth proportional. Suppose the numbers 6, 8, 9: extend the compasses from 6 to 8; and this extent, laid from 9 the same way, will reach to 12, the fourth proportional required. 4. To find a mean proportional between any two given numbers. Suppose 8 and 32: extend the compasses from 8, in the left-hand part of the line, to 32 in the right; then, bisecting this distance, its half will reach from 8 forward, or from 32 backward, to 16, the mean proportional sought. 5. To extract the square root of any number. Suppose 25: bisect the distance between 1 on the scale and the point representing 25; then the half of this distance, set off from 1, will give the point representing the root 5. In

L I N E N.

the same manner the cube root, or that of any higher power, may be found by dividing the distance on the line between 1 and the given number into as many equal parts as the index of the power expresses; then one of those parts set from 1, will find the point representing the root required.

LINE, MERIDIAN. See **GEOGRAPHY** and **ASTRONOMY**.

LINE OF BATTLE is the disposition of the fleet in the day of engagement, on which occasion the vessels are usually drawn up as much as possible in a straight line, to gain and keep the advantage of the wind and to run the same board. See **NAVAL TACTICS**.

LINE, SHIP OF THE, a vessel large enough to be drawn up in the line, and to have a place in a sea-fight.

LINEA ALBA, in anatomy, the concourse of the tendons of the oblique and transverse muscles of the abdomen; dividing the abdomen in two in the middle. It is called *linea*, line, as being straight; and *alba*, from its color, which is white.

LINE'AMENT, n. s. Fr. *lineament*; Lat. *lineamentum*. From **LINE**, which see. Feature; discriminating mark.

Noble York

Found that the issue was not his begot:

Which well appeared in his *lineaments*,

Being nothing like the noble duke, my father.

Shakspeare.

Man he seems

In all his *lineaments*, though in his face

The glimpses of his father's glory shine.

Milton.

God our parent hath stamped on our nature some
lineaments of himself, whereby we resemble him.

Barrow.

There are not more differences in men's faces, and the outward *lineaments* of their bodies, than there are in the makes and tempers of their minds; only there is this difference, that the distinguishing characters of the face, and the *lineaments* of the body, grow more plain with time, but the peculiar physiognomy of the mind is most discernible in children.

Locke.

The utmost force of boiling water is not able to destroy the structure of the tenderest plant: the *lineaments* of a white lily will remain after the strongest decoction.

Arbutnot.

I may advance religion and morals, by tracing some few *lineaments* in the character of a lady, who hath spent all her life in the practice of both.

Swift.

These are the moral attributes of the Divine Being, in which he requires us to imitate him; the express *lineaments* of the divine nature, in which all good men bear a resemblance to him; and for the sake of which only they are the objects of his delight.

Mason.

LIN'EN, n. s. & adj. Sax. *linen*; Goth. *lin'ener*. *Slin*; Teut. *lein*, flax; Lat. *linum*; Gr. *λινον*. Cloth of hemp or flax.

And thou tookest the body of Jhesus and bounden it in *linnum* clothis with swete smellynge oynementis, as it is the custom to iewis for to byrie.

Wiclif. Jon. xx.

Here is a basket, he may creep in; throw foul *linen* upon him, as if going to bucking.

Shakspeare.

A *linen* stock on one leg, and a kersey boot hose on the other, gartered with a red and blue list.

Id.

Death of thy soul! those *linen* cheeks of thine
Are counsellors to fear, What soldiers, whey-face?

Id.

Where is my fashioner? my feather-man?

My *linener*, perfumer, barber?

Ben Jonson.

Unseen, unfelt, the fiery serpent skims

A her *linen* and her naked limbs.

Dryden.

Proud spendthrift, whose fantastic air,

Honour'd figure, and cockaded brow,

In charge, and underneath the pride

Of costly *linen* tucked his filthy shroud.

Young.

A drawer, it chanced, at bottom lined

With *linen* of the softest kind,

With such as merchants introduce

From India, for the ladies' use.

Cowper.

LINEN. The fabrication of linen is a most important branch of the staple manufactures of Great Britain. On this account we have already fully examined the agricultural processes connected with the cultivation of flax; the dressing of hemp has also been briefly considered, and we must now proceed to the operation of spinning.

The most ancient mode of *spinning* is by the spindle and distaff, and this method is the simplest of all others. The spindle is nothing more than a piece of hard wood, made round, and sharp pointed at one end, so that it can be made to whirl upon its point in the same manner as a child's top: the upper part is reduced to a pin or peg, and it is this part which has the fibres united to it, the lower or enlarged part being only to give sufficient weight to make it revolve. The spinner must be seated upon the ground, and after having put the distaff in motion upon its point, by twirling it between the hands, get it up to a rapid motion by striking it occasionally with the hand, with a motion very similar to that by which a child keeps up the motion of his whipping-top, when he draws the lash of a whip round it.

The flax, after having been properly prepared, is lapped round the end of the distaff, which is nothing more than a stick that the spinner holds in his left hand, so as to be conveniently situated to draw off from it a few fibres at a time with the finger and thumb of the right hand, to form the thread. The upper part of the spindle, which is made smaller like a pin, has the ends of the fibres which are to form the thread attached to it before it is put in motion. These fibres are drawn out of the bunch which is wound upon the distaff, and held between the finger and thumb, so as to be in the direction of the length of the spindle; therefore, when the spindle is once made to revolve, it twists these fibres together, to form a thread, and, as fast as the thread forms, the spinner draws off more flax from the distaff, and guides the fibres between the finger and thumb, so that they shall be regularly delivered out, and make an even thread. The motion of the spindle is constantly kept up, by striking it as often as the hand can be spared from the operation of guiding the thread. When by these means as great a length of thread is formed as is convenient to reach from the end of it to the spindle, the thread is wound upon the outside of the small part or pin of the spindle, for which purpose the spinner applies the fore-finger against the thread, close to the end of the spindle, and bends the thread at that

part, so that it will be at right angles with the direction of the spindle, instead of being nearly in the direction of its length; and also, that it will be guided opposite to the middle of the pin, or small part of the spindle, instead of being at the extreme end thereof. In this situation the motion of the spindle, which is continually kept up, occasions the thread to wind up, or lap upon the pin of the spindle, instead of twisting round upon itself, as in the former case; but, when nearly all the length of thread is thus disposed of, the finger is removed from the thread, and it immediately assumes its original direction, by slipping to the extreme end of the spindle, so as to be twisted round itself by the motion of the spindle, and more fibres are now supplied to it from the bunch upon the distaff, to form a fresh length of thread. In this manner the spinning proceeds, until as much thread is spun and wound upon the pin of the spindle as will make a moderately sized ball.

This simple and inconvenient method of spinning becomes very efficient, when the spindle, instead of being spun upon the ground, is mounted in a proper frame, and turned by a wheel and band; this forms a machine which is called the one-thread wheel, and is still used in some parts of the country for spinning wool: the spindle is made of iron, and placed horizontally, so that it can revolve freely; and the extremity of the spindle, to which the thread is applied, projects beyond the support.

The wheel which turns it is placed at one side, the pivots of both being supported in upright pieces, rising up from a sort of stool. The spinner puts the wheel in rapid motion by its handle, and its weight is sufficient to continue the motion for some seconds; then walking backwards from the spindle, in the direction of its length, she supplies the fibres regularly, and the motion twists them into a thread; but, when a convenient length is spun, the spinner steps on one side, and reaches out that arm which holds the end of the thread, so as to alter the direction of the thread, and bring it nearly perpendicular to the length of the spindle, which motion gathers or winds up the thread upon the middle of the projecting part of the spindle. This being done, she holds the thread in the direction of the spindle, so that it will receive twist, and retreats again to spin a fresh length of thread.

A *spinning-machine* more perfect than this is the one-thread flax-wheel, with spindle and flyer; it has the property of constantly drawing up the thread as fast as it is spun, instead of spinning a length, and then winding it upon the spindle. For this purpose the spindle is made longer than the other, and is turned by a band and wheel; but the wheel receives motion from the foot by a small treadle, because the spinner sits before the wheel to work the spindle, which is supported upon its two extreme ends, and near one end the flyer is fixed, this is a piece of wood curved to an arc, the vertex of which is fixed on the spindle, and from the extremities of the arc two arms proceed, so as to be parallel to the spindle, and at such a distance from it as to admit a wooden bobbin to be fitted loosely upon the spindle; and at the same time the arms of the flyer can revolve round the bobbin without

touching it. The end of the thread is fastened to the bobbin, and conducted through a hook fixed in the flyer, so that it proceeds from the circumference of the bobbin to this hook, in a direction perpendicular to the bobbin, but turns round the hook so as to come into the direction of the spindle.

The thread is then conducted through a perforation made in the centre of the end of the spindle or pivot, upon which it revolves, and to this end of the thread the fibres are supplied. The twisting motion given by the revolution of the spindle forms them into a continuation of the thread, which is gathered up upon the bobbin as fast as the spinner lets it go through her fingers, by a tendency which the bobbin has to turn slowly, at the same time that the flyer to which the thread is hooked is revolving rapidly round the bobbin. For this purpose a string is passed round a small neck upon the bobbin, and, one end of the string being fastened to the frame, the other has a small weight to draw it tight round the neck of the bobbin, and occasion friction.

In other spinning wheels a second band from the great wheel is made to turn the bobbin more slowly than the spindle. The thread which passes over the hook of the flyer is rapidly carried round the circumference of the bobbin; but, as the bobbin follows the motion of the flyer, it only winds up as much thread upon the bobbin as the difference of the two motions; and this tendency to wind up can be increased or diminished at pleasure, by the friction which is occasioned by the string or band which passes round the neck of the bobbin. When the winding-up of the thread upon the bobbin has accumulated a ridge of thread, upon it opposite to the hook in the flyer, the thread must be shifted to another hook opposite to a different part of the bobbin, for which purpose the arms of the flyer are furnished with different hooks, and this must be repeated several times, until the whole length of the bobbin is filled; it is then taken off to be reeled, and replaced by another empty bobbin.

An improvement was made in the *spinning-wheel* by Mr. Antis some years ago, which was an application of what Sir Richard Arkwright had before invented. The object is to obviate the necessity of stopping the wheel to remove the thread from one hook to another, in the manner just described. For this purpose, the bobbin is made to move regularly backwards and forwards upon the spindle a space equal to its length, so that every part will, in succession, be presented opposite the hook over which the thread passes, and thus receive the thread regularly upon the whole length of the bobbin. The additional parts necessary for producing this movement are as follow: a pinion of only a single leaf is made to project from the extremity of the pivot of the great wheel, or a worm or endless screw formed on the end pivot will answer the same purpose, which is to actuate a wheel of seven inches diameter, and ninety-seven teeth; therefore ninety-seven revolutions of the great wheel will produce one revolution of this smaller wheel; upon the face of which a circular ring of wire is fixed, and supported from the wheel by six legs, so as to be oblique to the plane of the

wheel, as it touches it at one part, and at the opposite side of the ring projects nearly three-quarters of an inch. This ring of wire gives motion to an upright lever, about fifteen inches long and moving on a centre at three inches from its lower extremity, where it has a pin fixed in it and resting against the oblique ring of wire; therefore, when the wheel turns round, it communicates a small motion to the lever in consequence of its obliquity to the plane in which it revolves. The upper end of the lever is connected to an horizontal sliding-bar situated beneath the spindle, and having an upright piece of brass, which works in the notch of a pulley formed in the ends of the bobbin, and drives the bobbin backwards and forwards upon the spindle, according as the oblique ring of wire forces the pin at the lower end of the lever in or out, when the wheel moves round. To regulate and return this alternate motion, a small weight hangs by a line to the sliding-bar, and, passing over a pulley, rises and falls as the bobbin recedes and advances, and tends constantly to keep the pin at the lower end of the lever in contact with the wire. It is evident from this description, that one staple only is wanted to the arms of the flyer, which being placed near the extremity, the thread passes through it, and by the motion of the bobbin is laid regularly upon it from one end to the other.

The invention has also another advantage over the old method, which always winds the thread in ridges upon the bobbin; and, if the thread breaks in reeling the yarn, the whole bobbin may as well be thrown away, because the thread cannot easily be found again; but this improved wheel always winds the threads across upon one another, by which means the end can never be lost.

In order to regulate the friction on the bobbin, and retard its motion in a greater or less degree at pleasure, there is a neck of brass or steel fastened to one end of it, and embraced by a kind of small vice, or pincers, fixed to the sliding-bar. This vice must be made either with two elastic springs with wooden tops, or of wood wholly, and faced with leather; but, if made of wood only, then a spring must be made beneath the shoulder of the screw, to answer the same purpose. By tightening this screw, more or less, the friction on the bobbin may be regulated to the greatest nicety, provided the springs are of a strength rightly proportioned to their functions. It will readily appear, that all this may be done without the least effect on the velocity of the whole machine, as thereby nothing is added to the general friction so as to obstruct it.

We shall now proceed to give a description of a patent, obtained in 1806, by Messrs. Clarke and Bugby, for effecting certain improvements in a *machine*, intended to be worked by hand-labor, for the spinning of hemp, flax, &c.:—

Plate LINEN MANUFACTURE, fig. 1, represents an oblique view of the front of a frame containing ten spindles (but the frames may contain an indefinite number of spindles). A, the spindle or a bow passing through the whole frame, having ten bosses of brass or cast-iron thereon, each about four inches diameter, each boss supplying one spindle; B, a pinion of twelve leaves

upon the end of the spindle A, connected with the wheel C, of eighty teeth, fixed upon the end of a small iron spindle F, covered with wood, and extending through the whole frame; D, a slack or intermediate pinion of any size at discretion, connected with another similar pinion, the latter connected with a wheel of 120 teeth, which is fixed upon an iron spindle G, of about an inch and a half in diameter, and extending through the whole frame; but the wheels B, C, D, and F, may be varied in their numbers, to increase or diminish the draught of the substance operated upon, as may best suit its quality or the ideas of the workman. The pinion B is so contrived as to slip off the end of the spindle A, to make room for a smaller or larger one; by means whereof a larger or shorter thread may be spun from the same sized rovings; *a a a a a a a a a a* represent ten roved slivers of hemp, flax, tow, or wool, passing between the iron spindle G and rollers in pairs pressed against them by springs or weights; these springs or weights must operate with sufficient force to hold back the slivers or rovings so securely, that they may only pass on with the movement of the spindle; these pairs of pressing rollers are placed behind the spindle. The use of the small iron spindle F, covered with wood, and left rather larger than the spindle G, is, with pressure of the small wood-roller, made up in pairs *b b b b b*, and so contrived that each pair may roll upon two slivers, to bring them down straight, and preserve the twist which they receive in the roving-machine till the slivers leave them. The bosses on the spindle A, have likewise wooden rollers in pairs pressed against them by springs or weights, between which the drawn, lengthened, or extended slivers pass to the spindle, the rollers having each a tin conductor, *c c c c c c c c c c*, to bring the material under operation as centrally as possible between the wood-rollers and the bosses; but all the above-mentioned parts of the machine are so similar to the common upright frames, that a person conversant with them will not be at a loss to understand its arrangement. H, is a wheel of wood four feet in diameter, having its rim about two inches thick, with a groove in its periphery for a small cord or band. In its centre is a rule or stock of wood, through which the spindle I passes, and extends into its frame about one-fourth of its length. To enable the person that turns the winch to reach all the spindles at work, with the hand that is not engaged in turning, to remove any obstacle that may arise to the spindles, the arbor or spindle of the wheel I has its bearing on the sides of the frame that contains it, marked *L L L L*; this frame, with the wheel H, the arbor I, and the winch K, is similar to that part of a machine called a mule-jenny, used for spinning cotton; this frame is supported in a horizontal position at the outer end by two legs marked *M M*, and a screw-pin which passes through K, the front upright A, fig. 2, and made tight with the thumb-screw *a*; the screw passes through a groove or mortise at the end of the wheel frame, to enable the workman to adjust the wheels N and O, as it will be found necessary to change the wheel N, to make such alteration in the twist as the size of the yarn may

require, or as the workman may think proper. P and Q are bevel wheels of equal size, the former fixed upon the rule or stock of the wheel H, and connected with Q upon the spindle R, taking round with it the wheel N, which is connected with the wheel O. Upon the embossed spindle or arbor A, *a a a a a a a a*, are spindles standing on a carriage with four wheels, similar to the carriages used in mule-jennies for spinning cotton, having at each of them, at *d d d d d d d d*, a convex seat of wood of any convenient size, not less than the bottom of the bobbins or quills *e e e e e e e e*; these bobbins or quills are about six inches long and one inch and a quarter diameter at the bottom, and three quarters of an inch diameter at the top; but the sizes must be varied according to the size of the yarn. Perhaps four or five variations will be sufficient to spin yarn for tarpaulins or sail-cloth, up to fine yarn fit for good dowlas and fine stockings. T, a pulley, over which a band, from S, runs and returns, to draw out the carriage upon the four wheels described; W, the cylinder which drives the spindles.

Fig. 2 exhibits a side view. A, the wheel mentioned above in fig. 1, and there marked H; B, the winch by which it is turned by hand; C C C C, the frame wherein it works; D and E are blocks of wood on each side of the said frame to raise the wheel, so that the winch may be clear of the carriage F F, and apparatus G G; the two end wheels upon the carriage containing the spindles having two more corresponding on the opposite side thereof. H, a groove upon the end of a cylinder, which drives the spindles, and stretches through the carriage-frame, for the diameter of which no certain rule can be laid down, as it depends upon the length or size of the yarn, taken into account with the other parts of the machinery. N N N N N N N, a small band passing over the wheels A K, H I L, and M, by which the groove-wheel H and its cylinder are moved, and the spindles driven. O, a treadle shaft, represented by S S, fig. 1, passing through the frame or part thereof at the option of the workman, connected with a tumbler at the end of the embossed spindle or arbor A, in fig. 1, by a small band, wound five or six times round each of them, and passing over the wood groove-wheel Q, and made fast to the back of the carriage F F; this tumbler, by the motion of A, is, at the return of the carriage, locked to the wheel R; and unlocked when the carriage is not in its proper situation.

The carriage is drawn on by the weight of S fastened to a cord, which passes over the groove-wheel T, and is connected with the front of the carriage; U, the wheel on the arbor containing the holder shown in fig. 1; V, the cylindrical roller on a stirr fixed therein, and rolling at every return of the carriage on the plane W and X, which raises and falls the fallers and holders, so as to distribute the yarn upon the bobbins from the top to bottom; the wheels Y Z, A 2, and B 2, are the same wheels shown by B, C, D, and E, in fig. 1; 1, 2, &c., spools containing the rovings.

This machinery is calculated to save the heavy expense of currents of water, erecting spacious buildings, water-works, steam engines, &c., and

to spin hemp, flax, &c., at such an easy expense as to bring it within the reach of small manufactories. This machinery is also constructed upon such safe and simple principles, that no length of experience is necessary to enable even children to work it; and the use of water, steam, &c., being rendered unnecessary, it occupies so little space, that it may be placed in small rooms, out-buildings, or other cheap places. To effect the above purpose, it was necessary to get rid of the lanier or flyer, upon the spindle used in the old machinery for spinning hemp and flax, which requires a power in proportion of five to one, and to surmount the difficulty that arose from the want of elasticity in these substances. This want of elasticity, in the substance to be operated upon, is compensated and provided for in this machinery; and upon this composition and provision, effected by the various means hereafter mentioned, the return of the carriage without any assistance from the work-person, and the traverse for distributing the yarn upon the bobbins or quills, lay the stress upon the patent. The most simple mode of compensating the want of elasticity, and which is recommended in preference to the other, is that of having a holder of large wire for every spindle, fixed in an arbor or shaft extending from one end of the carriage to the other.

This arbor or shaft, with the holders, may be considered as a large and improved substitute for what is called a faller in the mule-jennies for spinning cotton, fig. 3. Let A represent the arbor or shaft, *b b b b b b b b b b* the holders fixed therein with the elliptical eyes, through each of which a thread passes from the bosses on the arbor A, in fig. 1, to its spindle. B, a spindle, which may be from ten to thirteen inches long; C, the whirl, wherein a small worsted band from the cylinder H, fig. 2, works D, a convex seat upon the spindle, whereon the concave bottom of the bobbin or quill E rests.

F, a piece of buffalo skin, or metal, screwed or nailed to the rail L, having a hole in it, through which the spindle passes, and by which it is kept steady; G, a wire bent at right angles at *a*, and the bent part driven into the rail A, so that it may be removed to or from the whirl C, and, by the other crook *b*, prevent the spindle from running out of its step H, which is a screw of brass or other metal passing through the rail K. The wire of which the holder is made, after forming the elliptical eye, is left or extended beyond the uppermost part *a*, that the yarn may be conveniently slipped in when occasion may require it; these holders for each thread are for the purposes of keeping the yarn in a state nearly vertical over the tops of the spindles when the carriage which contains them is coming out, and being released from that situation at the beginning of the carriage's return, and thrown into nearly a horizontal position, so as to bring the yarn below the top of the bobbins or quills upon the spindles; and then being curved and raised again by the wheel U, and its cylindrical roller moving upon the plane W and X, fig. 2, distributes the yarn upon the bobbins or quills, and prevents it from cockling, hinkling, or improperly doubling or twisting together. The

seats upon the spindles described by D, are turned convex, and the bottoms of the bobbins and the bottoms of the quills concave, to keep the bobbins or quills in a more central state upon the seats. The concavity of the bobbins or quills, exceeding the convexity, throws the weight of the bobbins or quills upon the peripheries or extremities of the seats, and ensures the rotatory motions of the bobbins or quills with that of their spindles. We prefer the convex and concave surfaces before described; but other surfaces will have nearly the same effect, if so contrived (as they easily may be) to bear upon the peripheries or extremities of the seats, as well as of the bobbins or quills. The hole through the bobbin or quill, fig. 4, is rather larger than the spindle, that it may not be obstructed in its motion round the spindle, which motion takes place at every return of the carriage, and as often as any thing obstructs the coming forward of the sliver of which the yarn is formed. At one end of the arbor whereon the holders are fixed is a counterpoise L, fig. 3, having a socket, and made fast; the arbor by a thumb-screw *m*, the round ball at the top being led to counterbalance the holders. This counterpoise, when the holders are in a vertical state, declines about 10° or 15° towards the horizon; but when the holders are thrown down, and under the government of the cylindrical roller V, upon the wheel U, is in a different situation; but the roller V, arriving at B 3, fig. 2, on the return of the carriage, the holders are precipitated to a height where the counterpoise overbalances them, and locks the wheel M fig. 3, or U in fig. 2, in the ratchet *n*, where it remains until the carriage has reached its destined place, where the tail of the catch O strikes against the pin in a frame C C C C, fig. 2, and releases it, the said roller then resting upon the frame U X. A second method of compensating and providing for the want of elasticity in hemp and flax, which is a part of the discovery, is, to fix a round bar of wood, about an inch and a half in diameter, the whole length of the carriage, about three or four inches above the tops of the spindles, so that the outer surface, or that next the work-person, may be perpendicularly, or nearly so, over the tops of the spindles, the inner side having pieces of wood or metal nailed or otherwise fixed thereto, leaving only small spaces between each for the yarn to pass through; the use of these pieces is to prevent the threads getting together and entangling, see fig. 5. A A A A represents a common faller used in the mule-jennies for spinning cotton with counterpoise B, wheel C, with its cylindrical roller D, with the plane W and X, before described by figs. 1, 2, and 3; E E, spindles with their whirls, convex seats, bobbins or quills, with their concave bottoms; F F F F F F F F F F the pieces of wood or metal, nailed or otherwise fastened to the round piece of wood, to prevent the thread getting together. In this case every thing applied to or used with the arbor, containing the holders above mentioned, may be applied or used.

The bleaching of linen being a purely chemical art, it might be expected that the knowledge of the instruments it employs would keep pace

with the progress and improvements of that science to which it is subordinate, and so much the more as the nature of alkaline substances in general, which are its proper instruments, has been in a great measure explained by the celebrated Dr. Black. Yet it has so happened, when a scarcity of these saline substances unhappily prevailed in this kingdom, it was seriously questioned whether their place could be supplied by materials manufactured at home. Mr. Kirwan very minutely examined the various processes that had previously been resorted to, and the result of his labors is given in a very valuable paper in the Transactions of the Royal Irish Academy. He commences with barilla. Of this substance there are several sorts, made of different plants; but the best is that formed near Alicant, at a distance from the sea, by the combustion of a plant called by the inhabitants *barilla*, and described by Jussieu, in the memoirs of the Academy of Paris for 1717, under the name of *kali hispanicum, supinum, annuum, sedi foliis brevibus*. It seems to be classed by Linnæus under the pentandria digynia, by the name of *sal sola vermiculata frutescens foliis ovatis acutis carnosiss*, and should carefully be distinguished from the various kinds of *salicornia* which he ranges under the title of *monandria monogynia*; and also from other plants which he calls *chænopodia*, which yield an alkali, but less pure than the *salsola*. These plants, being dried to the same degree as hay, are burned in pits nearly as kelp is with us, the ashes and salt run into a grayish blue mass, which is the barilla. The best sort is here called sweet barilla.

The sweet barilla examined by Mr. Kirwan was of a bluish color, covered over with a saline powder exceedingly hard, and had a sharp alkaline taste. When broken, it looked black in the fractured part, and visibly contained pretty large pieces of charcoal. To find the proportion of fixed air in this substance, having reduced a quantity of it to fine powder, he poured on an ounce of it a sufficient quantity of marine acid, and found it to lose by the action of this acid eighty grains of its weight; consequently one pound troy of this substance contains 960 grains of fixed air (mixed with a little that had an hepatic smell), that is exactly one-sixth of its weight. Other parcels contained somewhat more, and others somewhat less.

As this substance evidently contained some parts that were soluble in water, and some that were insoluble therein, to discover the weight of each, Mr. Kirwan poured on one pound of it, reduced to fine powder, thirteen pounds of water, moderately hot, successively; this water had previously been boiled and filtered, and tained no other impurity than a slight trace of common salt. This quantity of water was necessary to exhaust all the soluble matter in the barilla. The solutions were taken in six different portions: none of them betrayed the smallest trace of sulphur, nor did the Prussian alkali discover any vestige of iron. By eighteen successive evaporations and crystallisations, he obtained 4881 grains of saline matter, and 2903 of insoluble matter.

It may at first sight appear extraordinary that

L I N E N.

the saline matter and the insoluble part should weigh more than the pound of barilla that seemed to afford them; for this amounts only to 5760 grains, and the two former weigh 7784 grains; but it should be considered that these products were obtained not from the barilla alone, but from the barilla and the water in which the salts were dissolved, whose crystals retained a great quantity of it, and also from the air to which the solutions were exposed, and which they absorbed in large proportion. As the quantity of the insoluble matter was subject to no such deceptive appearance, Mr. Kirwan began by examining the weight of that; for this, being subtracted from 5760 grains, necessarily determined the true weight of the saline part; as the state in which the saline part exists in barilla depends in some measure on the earths and charcoal with which it is united, as well as the most advantageous method of using it.

Having therefore dried the insoluble matter for a considerable time, in a low heat, until it appeared as dry as the barilla itself, and found its weight in that state to amount to 2903 grains, or 6·04791 ounces, Mr. Kirwan took one ounce of it, and, drying it in a heat little below redness, found it to lose thirty-eight grains of moisture. Another ounce of the same residuum, being treated with dilute marine acid, lost 125·5 grains of its weight, and this loss expresses the quantity of fixed air contained in it. Another ounce, being calcined in a white heat for about one hour, lost 200 grains of its weight; and, on repeating this experiment, he found the loss amount to 199 grains. Lastly, on the 281 grains which remained after this experiment, he poured dilute marine acid, and found the quantity of fixed air to be 106 grains.

Mr. Kirwan next examined the fixed combustible part that remained after the above calcination. On the 279 grains of this, which remained after the calcination of an ounce of the insoluble part, he poured a quantity of distilled vinegar, whose specific gravity in the temperature of 62° was 1·008, and digested that residuum therein for sixteen hours in a heat little more than 100°. After edulcoration, and desiccation, the weight of what remained undissolved was found to amount to sixty-three grains. Upon this experiment he reasoned thus: 281 grains of a residuum of this sort contained 106 grains of fixed air, therefore the 279 grains subjected to the vinegar in this experiment must have contained 105·24, which were dissipated by the action of the acid; there remained, therefore, of mere earth only 173·76; but of these sixty-three escaped the action of the acid, therefore there were dissolved 110·76. And as distilled vinegar can act only on calcareous and muriatic earth (the barytic not being excepted), the 110·76 that were dissolved must have consisted of either or both of these, and the undissolved sixty-three grains must have been argillaceous or siliceous. The sixty-three grains, being digested in spirit of salt, left a residuum of 41·3 grains, which, therefore, were siliceous; the remainder, not being precipitable by the vitriolic acid, was consequently argillaceous earth: hence the quantities of these ingredients in 480 grains of the insoluble part of barilla were found to be :—

		In the whole soluble part.
	grains.	grains.
Fixed air . . .	125·5	759
Water . . .	38	229·82
Charcoal . . .	142·5	861·82
Calcareous earth . . .	89·76	542·86
Muriatic . . .	21	127
Argillaceous . . .	21·7	131·23
Siliceous . . .	41·3	249·58
	479·76	2901·31
Error . . .	24	Error 1·69
	480·00	2903·00

We may now return to the soluble part of the barilla, which necessarily amounted to 2857 grains. In the first place, Mr. Kirwan obtained 4213 grains of pure crystallised mineral alkali: but these crystals are known to contain but one-fifth of real alkaline substance, the remainder being fixed air and water of crystallisation; therefore, one pound of barilla contains but 842 grains of pure real alkali. Besides this, he also obtained 127 grains of a mixture of vegetable and mineral alkali, with a small proportion of extractive matter, and some digestive salt; this mass constantly attracted moisture. These solutions afforded also 125 grains of Glauber's salt, and seventy of common salt; but the Glauber's salt, at least, did not exist in a crystallised form in the barilla; and, as 100 grains of it are reduced to forty-two by expelling the water of crystallisation, no more than fifty-three grains of it can be deemed to have pre-existed in the barilla. Hence the weight of the different ingredients contained in one pound of sweet barilla is as follows:—

Fixed air . . .	960	
Charcoal . . .	861·82	
Calcareous earth . . .	542·86	
Muriatic earth . . .	127	} 1050·67
Argillaceous . . .	131·23	
Siliceous . . .	249·58	
Mineral alkali pure . . .	842	
Mineral alkali impure . . .	250	} 12
Mineral alkali mixed with common salt . . .	127	
Glauber's salt . . .	125	
Common salt . . .	70	
Earth deposited . . .	20	
	4306·49	
Water . . .	1453·51	
Total . . .	5760·00	

Hence we see that the alkaline part of barilla is nearly in a caustic state; for the entire pound of barilla contained but 960 grains of fixed air, and of this quantity 759 were contained in the earthy part. Therefore only 201 grains were contained in the saline part. Now 960 grains of this require for their saturation at least 700 of fixed air, therefore they wanted at least two-thirds

of the quantity requisite to saturate them. Hence bleachers should not use boiling water to extract the saline substance of barilla, for the alkaline part being in a caustic state dissolves part of the coaly matter with which it is united, which sullies the solution, gives it a dark hue, and afterwards is deposited on the linen, and cannot be separated by acids.

Dantzic pearl-ash.—The quantity of fixed air and earth contained in different parcels of this substance is variable; in some ounces the quantity of fixed air was found to amount to 100 grains, in others to 115; and therefore at a medium it may be rated at 107.5 grains, or 1290 grains in one pound troy. The earth remaining after the solution of one pound amounted to twenty grains. After ten evaporations, Mr. Kirwan procured from one pound of this substance 505 grains of tartar vitriolate, the last portions of which contained some digestive salt, and also thirty-six grains of this last containing a portion of tartar vitriolate; about eighteen grains of earth were deposited during the evaporations. The remainder of the pound consisted of the pure alkali. Hence the ingredients in a pound must have been nearly in the following quantities:—

Fixed air	1290
Moisture	414
Digestive salt and ditto	36
Tartar vitriolate	505
Earth	38

	2283	5760
Mere alkali	3477	2283
	5760	3477

Mr. Kirwan considers the following method much more practicable and easy than the preceding, for discovering the alkaline principle in all substances in which it exists. 1st. Procure a quantity of alum, suppose one pound; reduce it to powder, wash it with cold water, and then put it into a tea-pot; pour on it three or four times its weight of boiling water. 2dly. Weigh an ounce of the alkaline substance to be tried, powder it and put it into a Florence flask with one pound of pure water; if the substance to be examined be of the nature of barilla or potash; or half a pound of water if it contain but little earthy matter as pearl-ash; let them boil for a quarter of an hour; and when cool let the solution be filtered into another Florence flask. 3dly. This being done, gradually pour the solution of alum hot into the alkaline solution also heated, a precipitation will immediately appear; shake them well together, and let the effervescence, if any, cease before more of the aluminous solution be added; continue the addition of the alum until the mixed liquor, when clear, turns syrup of violets red; then pour the liquor, and precipitate on a paper filter placed in a glass funnel, the precipitated earth will remain on the filter; pour on this a pound or more of hot water until it passes tasteless; take up the filter and let the earth dry in it until they separate easily, then put the earth into a cup of Staffordshire ware, place it on hot sand and dry the earth until it ceases to stick to glass or iron, then pound it and reduce it to powder in the cup with a glass pes-

tle, and keep it a quarter of an hour in a heat of from 470° to 500°. 4thly. The earth being thus dried, throw it into a Florence flask and weigh it, then put about one ounce of spirit of salt into another flask, and place this in the same scale as the earth, and counterbalance both in the opposite scale; this being done, gradually pour the spirit of salt into the flask that contains the earth, and, when all effervescence is over, blow into the flask, and observe what weight must be added to the scale containing the flasks to restore the equilibrium; subtract this weight from that of the earth, the remainder is a weight exactly proportioned to the weight of mere alkali of that particular species which is contained in one ounce of the substance examined; all beside is superfluous matter.

Crystallised soda.—Though it contains only one-fifth of its weight of real alkali, the remainder being water and fixed air, but the proportion of alkali being invariably the same, it is the fittest for a standard with which other substances containing the same sort of alkali may be compared. Mr. Kirwan found that as much of this substance as would contain 480 grains of mere alkali would precipitate 725 grains of earth of alum dried, and consequently that 480 grains of mere mineral alkali precipitate 725 of earth of alum.

Cunnamura kelp.—This is a hard porous black substance, mixed with white and gray spots, its smell sulphureous, and its taste mixed, being that of common salt and alkali. One ounce of it dissolved in marine acid lost twenty-four grains of its weight, which escaped in an aerial form. This air was hepatic. Another ounce dissolved in boiling water left an insoluble residue, which, being heated in a crucible to redness, weighed 165 grains; this residue effervesced with acids, and seemed for the most part calcareous. This solution precipitated twenty-five grains of earth of alum, and therefore contained 16.5 grains of mere alkali. During the precipitation of the earth of alum much hepatic air was emitted, and the earth was sullied by the sulphur, though only a few grains of this can be presumed to be mixed with it.

Strangford kelp.—This substance was much denser, less porous, and in appearance approached more to that of a vitrified mass than Cunnamara kelp; it was at least equally sulphureous. The solution of one ounce of it precipitated only nine grains of earth of alum, and this earth was much more discolored than that precipitated by the preceding kelp. The insoluble residuum of an ounce amounted to 174 grains.

Vegetable alkali.—Mr. Kirwan found that 480 grains of the purest and driest salt of tartar (making allowance for the quantity of fixed air it contained) precipitated 331.5 grains of earth of alum.

Cashup.—The best sort, namely, that marked with the cross arrows, is of a bluish-gray color, exceedingly hard, and of a semivitrified appearance, its smell sulphureous, its taste scarcely alkaline, and does not attract the moisture of the air. With marine acid, one ounce of it afforded thirty-one grains of hepatic air. When dissolved in water the residuum of an ounce was 357 grains of a gray earth, that appeared to be calca-

reous for the most part. The solution itself was of a yellow color and strongly sulphureous. With the solution of alum it did not effervesce strongly, until a good deal was added. The precipitate was of a dirty white, and amounted to sixty-six grains, of which two appeared to be sulphur. Hence its quantity of vegetable alkali is nearly ninety-three grains per ounce.

Common Irish weed ashes.—This was of a loose texture, dark gray color, and salt taste, mixed with charcoal, brick-dust, and other impurities. One ounce of it lost by gentle drying forty-seven grains, and in a red heat seventy-two grains more. Twelve ounces of the undried ashes, being lixiviated, left a residuum, which when dried weighed 4214 grains; the solution was reddish, replete with extractive matter; it afforded a large quantity of digestive salt, and some tartar vitriolate, and very little alkali. Two ounces of the same ashes being gently heated to a slight degree of redness lost 186 grains of their weight. One ounce of this calcined ash being boiled in six ounces of water left a residuum of 344 grains, and consequently contained 136 grains of saline matter; but of this saline matter only 22.4 grains were pure alkali, for the solution precipitated 15.5 grains of earth of alum; an hepatic smell was perceived during the precipitation of the alum, and the earth was of a dirty color.

The following table contains the quantity of mere alkali, in 100 avoirdupois pounds of the substances below-mentioned, by the aluminous test:—

	Mineral alkali.
Crystallised soda	20 lbs.
Sweet barilla	24
Cunnamara kelp	3.437
Do. desulphurated by fixed air	4.457
Strangford kelp	1.25
	Vegetable alkali.
Dantzic pearl-ash	63.33
Clarke's refined ash	26.875
Cashup	19.376
Common raw Irish weed ash	1.666
Do. slightly calcined	4.666

Mr. Kirwan furnishes in his paper a section on the coloring matter of linen yarn and its solvents. Having procured a sufficient quantity of alkaline lie saturated with this coloring matter, or, as the workmen call it, *killed*, and which they are in the habit of throwing away, he found it to be a turbid liquor, of a reddish-brown color, a peculiar taste, and strong smell, affording no sign of either acidity or alkalescence. On five quarts of this liquor he poured two ounces of weak marine acid; there was no effervescence, but a copious deposition instantly took place of a grayish-green color, and the liquor freed from this deposit was of the color of red amber. The next day he drew off the liquor with a syphon, and poured two quarts of pure water on the deposited matter; and, having agitated the whole, suffered this matter again to subside, drew off the water, and added two quarts more; this liquor gave manifest signs of acidity, and continued somewhat reddish. Presuming, that after the addition of so much water, this acidity could

not proceed from the small quantity of marine acid he had used, more especially as the liquor originally contained an alkali, in the saturation of which the greater part of the acid must have been employed, he began to suspect that this lie contained an acid of its own, which was disengaged and separated from the alkali by the marine acid as the more powerful of the two; and hence he reserved the two quarts of liquor, last added, for subsequent experiments. After repeated effusions of cold water, when the characters of acidity were scarcely any longer perceptible, he threw the deposited matter on a filter and suffered it to dry for some time; it was then of a dark greenish color, somewhat clammy like moist clay. He took a small portion of it, and added to it sixty times its weight of boiling water, but not a particle of it was dissolved. The remainder was dried in a sand heat; it then assumed a shining black color, became more brittle, but internally remained of a greenish yellow, and weighed an ounce and a half.

By treating eight quarts more of the saturated lie in the same manner, Mr. K. obtained a further quantity of the greenish deposit, on which he made the following experiments: 1st. Having digested a portion of it in rectified spirit of wine, it communicated to it a reddish hue, and was in a great measure dissolved; but by the effusion of distilled water the solution became milky, and a white deposit was gradually formed; the black matter dissolved in the same manner. 2ndly. Neither the green nor the black matter was soluble in oil of turpentine or linseed oil by a long continued digestion. 3dly. The black matter being placed on a red-hot iron, burned with a yellow flame and a black smoke, leaving a coally residuum. 4thly. The green matter being put into the vitriolic, marine, and nitrous acids, communicated a brownish tinge to the two former, and a greenish to the latter, but did not seem in the least diminished.

Hence it appears that the matter extracted by alkalies from linen yarn is a peculiar sort of resin, different from pure resins only by its insolubility in essential oils, and in this respect resembling lacs. He now proceeded to examine the power of the different alkalies on this substance; eight grains of it being digested in a solution of crystallised mineral alkali, saturated in the temperature of 60°, instantly communicated to the solution a dark brown color; two measures (each of which would contain eleven pennyweights of water) did not entirely dissolve this substance. Two measures of the mild vegetable alkali dissolved the whole. One measure of caustic mineral alkali, whose specific gravity was 1.053, dissolved nearly the whole, leaving only a white residuum. One measure of caustic vegetable alkali, whose specific gravity was 1.039, dissolved the whole. One measure of liver of sulphur, whose specific gravity was 1.170, dissolved the whole. One measure of caustic volatile alkali dissolved also a portion of the matter. See BLEACHING.

M. Hermbsstaedt has furnished the following method of preparing colors for dyeing linen goods, which may easily be washed out or bleached and replaced by others. They are

much used in Germany, where they are called *waschfarben* or washing colors. The base is a good white starch, which may be combined with any color whatever, in such a manner as to form a compound, that can be dissolved in warm water without being decomposed. But although starch forms the base of all these colors, a particular process is necessary to prepare each of the different coloring matters that are to be combined with it, which we shall give as follows:—

1. *Blue*.—Grind some indigo of Guatimala to an impalpable powder; then pour four ounces of burning oil of vitriol into an earthen pan, and put to it an ounce of the pulverised indigo, by degrees, and always in small quantities; while the indigo is being thus incorporated with the oil of vitriol, the mixture must be well stirred at each fresh addition of the powder with a stone pestle, until the whole liquid mass becomes of a uniform blackish blue color. By thus mixing indigo with oil of vitriol the mixture heats itself, exhales a sulphurous smell, and a slight fermentation will be perceived. As soon as the fermentation ceases, the vessel must be closely covered, and placed for twenty-four hours in a situation moderately warm, in order to give time for the acid to dissolve the indigo entirely.

When the dissolution is effected, the liquid must be diluted with ten times its weight of pure water; after which it is exposed to the fire in a copper vessel, until it is nearly as hot as boiling water. Then soak it in some flocks of wool well bleached, or pieces of white wool, in the proportion of eight ounces of wool to half an ounce of the dissolved indigo; expose the whole for twenty-four hours to a moderate fire of about 150° of Fahrenheit's thermometer. The wool acquires a very deep blue dye, almost black; and the remainder of the liquid is almost entirely deprived of the blue coloring matter, and appears of a dirty green color. In this manner the wool absorbs the blue coloring matter of the indigo, by separating it from the heterogeneous particles that were combined with it.

The wool that has been thus dyed is put into a sieve over a tub, and some pure river water poured on, being kneaded at the same time, until the water comes off quite clear and colorless; thus the heterogeneous and dirty parts are separated from the indigo, and the pure blue coloring matter remains with the wool. When this operation is terminated, a quantity of river or rain water, equal to forty times the weight of the indigo and oil of vitriol, is boiled in a boiler; in this water is dissolved as much crystallised natron as equals the quantity of indigo employed; the dyed wool is then plunged into it, and boiled until it has nearly lost all its color. The wool when it comes out of the boiler is a blue gray; the liquid remains of a fine deep blue, and contains the coloring matter of the indigo pure and dissolved.

If, for instance, an ounce of indigo is dissolved in oil of vitriol, and the liquid evaporated until the weight is reduced to four pounds and a half, then strained through a linen cloth, in order to separate the foreign particles that may be mixed with it, after which, if this blue dye be left to cool, it is then in a proper state to be em-

ployed as a coloring matter to give a blue color to starch.

If a deep blue is desired, the proportions must be half an ounce of indigo to a pound of starch; for a middling color, a pound and a half of starch to the same quantity of indigo; and, for a light blue, two pounds of starch to the same. The starch must be put into a bowl, the blue dye poured on it, and the whole well rubbed together until the starch be completely divided, and uniformly combined with the dye. Lastly, the mixture must be left at rest, until it acquires the consistency of a fine thin jelly; it is then dried in a warm air, and put away for use.

2. *To prepare a blue color with prussiate of iron*.—A blue color, similar to the preceding, may be prepared by employing, instead of indigo, prussiate of iron, or Berlin blue. The last mentioned must be of the best quality, and it is rubbed with water in a mortar until it is so far combined with it that it will not easily separate; afterwards the blue matter is left to deposit, the water is decanted off, and the matter is triturated with the quantity of wet starch that is necessary to make the shade of blue desired. This color, which is very fine, is dried, and bears the action of the sun and air better than the preceding. It must be observed, however, that when the cottons that have been dyed with this color are washed with this soap, it always leaves a yellowish tint in the water.

3. *Citron-yellow*.—Weld, saw-wort, and turmeric, are employed in preparing this color. One pound of the two first substances, or half a pound of the turmeric, if that root is preferred, are boiled with twelve pounds of water, in a copper boiler, until the liquid is reduced to a pound, which is then strained through a linen cloth. In this clear liquid two ounces of alum are dissolved, the solution is suffered to cool, and two pounds of white starch are mixed with it, and rubbed until all its particles are well combined with those of the color. This compound is then dried in the air.

4. *Orange color*.—*Bixa orellana* is preferred for this color: an ounce of it is pulverised with half an ounce of pure potash; some river water is poured on it, and this mixture is digested in an earthen vessel, closely covered, for four hours, at a temperature of 185° of Fahrenheit, and occasionally shaken.

The liquid obtained by this process is of an orange color, which is drained through linen, suffered to cool, and then incorporated with two pounds of starch. The whole is afterwards dried in a warm or temperate air.

5. *Green*.—This color is composed of blue and yellow: in order to obtain it, a part of the indigo dye, described at No. 1, and as much of the yellow dye of No. 3, are mixed together until the desired color is produced, which may be known by trying it on paper. A pound of this mixed dye is dissolved with an ounce of alum; when the solution is cold two pounds of white starch are mixed, and well incorporated with it, after which it is dried.

In this manner different shades of green can be obtained, according to the proportions in which the blue and yellow dyes are mixed.

6. *Olive*.—This color is prepared by mixing the indigo dye No. 1, with the bixa orellana, No. 4, until the desired shade is obtained; the necessary quantity of starch is then added, and the mixture dried.

7. *Red*.—This is prepared from Brasil wood or cochineal; if the first be preferred, a pound of scrapings of this wood must be boiled in a tin copper cauldron, with twelve pounds of rain or river water, until the whole is reduced to two pounds. It is then strained through linen. Afterwards two ounces of alum are dissolved in three ounces of boiling water, to which are added six ounces of the decoction of Brasil wood, and the whole is left to cool. To this mixture three pounds of white starch are added, and well incorporated; then the remainder of the decoction of Brasil wood is poured on, and the mixture is stirred until it acquires the consistency of a thin jelly, when it is dried in the air.

8. *Crimson*.—Half an ounce of pulverised cochineal is tempered with water, and put into a tin vessel, containing two pounds of boiling water. When the whole is well mixed, it must continue gently boiling until the quantity of liquid is reduced to a pound: it is afterwards strained through linen or a paper filter. In this colored liquid half an ounce of alum is dissolved; and when it is cold two pounds of starch are well incorporated with it; it is then left to dry in the air at a mild temperature.

Besides these two colors, other shades of red may be obtained:—

(1.) By adding, instead of the alum, half an ounce of tin dissolved in aqua regia, to a pound of the cochineal or fernambouc dye.

(2.) By mixing either of these dyes with a decoction of weld or turmeric, by which means yellow reds and coquelicot may be produced.

(3.) By mixing them in different proportions with the blue dye, this mixture will produce different shades of violet and purple.

9. *Violet*.—Half a pound of scrapings of log-wood must be boiled with six pounds of water in a tin vessel, until the liquid is reduced to a pound and a half. This decoction is strained through linen, or filtered through paper. An ounce of tin dissolved in aqua regia is then added to it, two pounds of starch incorporated with it, and left to dry in mild air. In this manner the colors and shades may be multiplied and diversified in a thousand ways by mixing the above decoction in different proportions, or by adding to it other coloring substances in order to obtain dyes that may be combined with the starch.

When any of these colors are used to dye wearing apparel, furniture, &c., any quantity may be taken and tempered with fresh water, and afterwards dissolved in boiling water: into this the stuff must be plunged; which, with well rubbing, takes the desired color, and acquires also additional body or solidity. See DYEING.

Mr. Shotwell obtained a patent, in 1807, for a machine for bleaching, washing, and cleansing linen. It consists of an oblong wooden box of about three feet and a half in length, fourteen inches wide, and about fourteen inches deep, made perfectly water-tight, excepting a small

hole through the bottom near to one end, to draw off the water when done with, which hole is at other times stopped up by a bung or any other contrivance. To this box legs are affixed, so as to raise it about three feet from the ground; it is covered over with boards laid cross-ways about four inches and a half at each end, and which may be made to project outwards to any extent, as also over each side so as to form a table. The remaining open space is covered with two flaps, excepting a portion of about nine-eighths of an inch; one of these flaps is hung with hinges to the outward or back side, so as to form a door to lift up; the other is simply laid in grooves, and fastened down by wooden bolts. Into the open space between the boards, the washing implement, represented in figs. 6 and 7, is introduced; and to the top of this a lever is attached in the manner shown at B in figs. 8 and 9; though it is evident, the patentee states, that any other mode of propelling the washing implement may be employed, or the lever may be attached in any other way.

Instead of having the washing-implement on the above plan, the box may be entirely covered over with boards, flaps, or doors, as before mentioned; and pieces of wood may be nailed to the inside, so as to form ridges about an inch and a half from the top, on which the washing-implement may be suspended and made to slide; the whole of the upper part will in this case be needless, and the lower part, which will be in the box, is to be affixed to a lengthened piece of wood C, fig. 8, which is to be brought through a hole made in the end of the machine, opposite to that at which the lever B is placed. This lengthened piece of wood is connected with the lever in the manner shown by the dotted lines C D in fig. 8.

The foul linen to be washed by this machine is evidently to be placed on each side of the implement, which is to be forced backwards and forwards by the lever, as before described.

If it be convenient to admit steam into the machine, the water therein will be kept at a proper heat, and the linen will be whiter than in the usual way of washing. The steam may be introduced into the washing-machine by means of a pipe communicating with a boiler.

Fig. 6 exhibits a side view of the washing-implement.

Fig. 7 a front view of the same, or that part which faces the end of the machine.

Fig. 8 is a side view of the apparatus complete. A, the oblong box, with small inclinations at each end, as shown by the dotted lines *aa*, which cause the linen to turn more about than they otherwise would, when the washing-implement approaches them. B shows one way of connecting the lever with the implement, and the dotted lines C D another. E is a mortise to support a tenant board, on which the lever B works; it is more clearly shown in fig. 9 which is an end view.

Mr. Shotwell has constructed another apparatus for the same purpose, which it may be advisable briefly to examine. Instead of making an oblong box, a barrel is formed, which is placed horizontally on axes at each end, which

are made to turn in friction-boxes. The barrel is placed on a convenient framing, as may be seen in figs. 10 and 11, to which is generally attached a vessel, immediately under the washing-barrel A, to receive the dirty water from the barrel, in which there is a hole B to permit its escape into the vessel D. In this barrel a hole C is made sufficiently large to put in and take out the linen, &c., and which is stopped up with a bung when in use. On the inside of this barrel one or more ribs is affixed, as in the common horizontal barrel-churn; and when steam is to be employed, as in the apparatus described, it must be introduced through one of the axes, which must be perforated for that purpose: the other axis should also be perforated to permit the escape of any superabundance.

Mr. Weise, of Tooley Street, has taken out a patent for making cloth waterproof. Among the materials enumerated by the patentee are, fur, flax or hemp, carded silk, and feathers. The proportions of these are to be five pounds of the finer furs, two pounds and a half of the wool, two pounds of the flax, one pound of the carded silk, and three-quarters of a pound of the feathers. These materials are to be divided into portions of about two ounces each, and to be passed through a fine carding engine by one portion at a time, the fine fur being first laid or bowed on the roller cloth of the engine, which will cause it to lie on the outside of the carded flake. After being thus carded, the materials are to be drawn, roved, and spun, like cotton, the management directed for them being the same as is used for that substance.

The yarn spun is to be of two sorts, one fine, for the warp, and the other coarser and softer, for the weft. It is then to be woven in a loom of from eight to twelve lambs, and a proportional number of treadles. The fine yarn forming the warp is to be kept at the back of the cloth, and the soft weft in the front, by the means well known to weavers, and similar to those used in weaving diapers and velvets.

When the cloth is wanted to be made waterproof, a composition is to be prepared of equal portions of shell-lac, caoutchouc, mastic, gum animi, and sandarac; by cutting the caoutchouc into very small shreds, and pounding the gums and lac very fine, and then dissolving them in ether and spirits of wine, or spirits of turpentine. Into this composition the fine skeins for the warp are to be dipped, and then to be gently pressed or left to drain, and to be hung up to dry; and, when dry, are to be stretched in the loom, where, instead of the common sizing, the composition above stated is to be used.

After the cloth is woven, the fur or nap is to be drawn forward on its front by teazles or cards, and a hot smoothing iron is to be passed over its back, to cause the composition to sink into it, and close the interstices.

This cloth, when intended for hats, is to be laid over linings or moulds, on hat blocks, of the same materials usual for those of silk hats, and to be managed in the same manner. For wearing apparel the cloth is to be chiefly made of Saxon wool and flax, managed as before mentioned; and when cloth with a pile, like

plush or velvet, is wanted, it is to be woven in a velveteen loom, and then to be cut in the usual manner.

A few facts connected with the history of weaving may now be introduced.

The combined arts of spinning and weaving are among the first essentials of civilised society, and we find both to be of very ancient origin. The fabulous story of Penelope's web, and still more the frequent allusions to this art in the sacred writings, tend to show, that the fabrication of cloth from threads, hair, &c., is a very ancient invention. It has, however, like other useful arts, undergone a vast succession of improvements, both as to the preparation of the materials of which cloth is made, and the apparatus necessary in its construction, as well as in the particular modes of operation by the artists. Weaving, when reduced to its original principle, is nothing more than the interlacing of the weft or cross threads into the parallel threads of the warp, so as to tie them together, and form a web or piece of cloth. This art is doubtless more ancient than that of spinning, and the first cloth was what we now call matting, viz. made by weaving together the shreds of the bark, or fibrous parts of plants, or the stalks, such as rushes and straws.

This is still the substitute for cloth amongst most rude and savage nations. When they have advanced a step farther in civilisation than the state of hunters, the skins of animals become scarce, and they require some more artificial substance for clothing, and which they can procure in greater quantities. Nevertheless, some people are still ignorant of the art of weaving; for the cloth made in the islands of the South Sea appears to be made by cementing or glueing the shreds together, rather than by weaving. From the description given by captain Cook, and other circumnavigators, and from the specimens which have been brought to Europe, their cloth, or rather matting, is in general produced by cohesion of the parts, rather than texture. This assimilates it more to the ideas which we attach to paper or paste-board, than those which we form of cloth.

When it was discovered that the delicate and short fibres, which animals and vegetables afford, could be so firmly united together by twisting as to form threads of any required length or strength, the weaving art was placed on a permanent foundation. By the process of spinning, which was very simple in its origin, the weaver is furnished with threads far superior to any natural vegetable fibres in lightness, strength, and flexibility; and he has only to combine them together in the most advantageous manner.

The art of weaving cloth has been so extensively applied in almost every civilised country, and the knowledge of its various branches has been derived from such a variety of sources, that no one person can ever be practically employed in all its branches; and, though every part bears a strong analogy to the rest, yet a minute knowledge of each of these parts can only be acquired by experience and reflection.

We may now briefly examine the origin of the linen manufactory in Ireland. In the year

1633 lord Wentworth, an austere, imperious, but active and sagacious nobleman, entered into office as chief governor. He was a tyrant, but his tyranny was tempered with wisdom. Sensible how much the power and glory of a monarch depend on the prosperity of his people, he was so assiduously attentive to the peace, intellectual improvement, and industry of the Irish, that, though individuals often felt the arrogance of his temper, the nation in general had reason to be grateful for the benefits arising from the vigor of his administration. Protected by a strictness before unknown in the execution of English law, unusual numbers, and with unusual attention, applied their thoughts to pursuits of industry; the consequences of which appeared in the rising value of land, the augmented quantity of products for exportation, and such an increase of commerce, that the shipping of Ireland was multiplied a hundred fold. For the encouragement of traffic, this deputy, so zealous for the promotion of the power and revenue of his master, used his influence for the abolition of oppressive duties on the importation of coals and horses into Ireland, and on the exportation of live cattle.

By Wentworth's endeavours, a manufacture of linen cloth was established in Ulster; a recent fabrication of woollen drapery was discouraged, lest it should come in competition with that of England, for the purpose that Ireland should be dependent on that country for the clothing of its inhabitants, and consequently less prone to a political separation; to make amends for this injustice, the deputy exerted himself so strenuously for the encouragement of linen, that he took a share in the enterprize, at the expense, according to his own statement, of £30,000, from his private fortune; as flax had long been known to thrive in this country, and many of the women being spinners, hopes of success were early conceived. Flax-seed was brought from Holland; weavers from several parts of the Low Countries, and from France; looms were fabricated, and regulations formed for the prevention of defects in the cloth by fraud or negligence: experience has proved the propriety of the plan, since this manufacture, notwithstanding its interruption in its infancy, by a desolating civil war, became in time the principal support of the wealth of Ireland.

In Ireland, every bleacher must stamp his own name on the end of every web; hence it can always be ascertained, by mere inspection, where the bleaching has been performed. Again, should any goods be improperly bleached, so that the texture is injured, the bleacher is liable to be compelled to take back the whole of them, and pay every expense of carriage, however far they may have been conveyed from the spot where they were finished. In this case, the bleacher is also subjected to a considerable fine. So certain is the infliction of this penalty, in case of a complaint being properly lodged against a delinquent, that some years ago, when the bleaching process was not conducted with that care with which it is at present, several persons actually travelled through many of the counties of England and Scotland for the purpose of collecting

from the mercers all such damaged Irish linens, and for which they paid good prices, in order to be entitled to receive the fines.

The best regulation may, however, be superseded and often evaded. Accordingly it is well known that many hundred thousands of pieces of calicoes are made and finished in Lancashire, and stiffened in a peculiar way, to imitate the Irish linens, particularly those made at Colerain, and that they have the name of this place stamped upon them.

It is notorious that a kind of linen thread made at Paisley, in Scotland, and known by the name of nuns' thread, has the preference, and is the best for use. In consequence of the character which this thread has acquired, the Irish have begun a similar manufacture, and scruple not to usher theirs into the market under the sanction of a stamp bearing the name of Paisley.

In like manner, an article called Inkle, and some species of thread resembling that which is made in Holland, are now manufactured in large quantities in Scotland, and sold under a Dutch stamp; the method of making these articles having been stolen from Holland, and brought into Scotland half a century ago. Ths, self-interest is apt to be the leading motive with mankind in all nations.

The linen trade of this country is regulated by several statutes.

No person shall put to sale any piece of dowlas linen, &c., unless the just length be expressed thereon, on pain of forfeiting the same, 28 Hen. VIII. cap. 4. Using means whereby linen-cloth shall be made deceitfully incurs a forfeiture of the linen, and a month's imprisonment. Stat. 1 Eliz. cap. 12. Any persons may set up trades for dressing hemp or flax, and making thread for linen-cloth, &c. 15 Car. II. cap. 15.

By 43 Geo. III., c. 69, all former duties on linen-cloth, silks, cottons, and calicoes are repealed; and in lieu thereof other duties are imposed upon all goods which shall be printed, stained, painted, or dyed in Great Britain, according to a schedule annexed to the act: and, by 50 Geo. III. c. 26, certain export duties are imposed; the said duties to be paid by the printer, stainer, painter, or dyer. By 49 Geo. III., c. 98, certain duties and customs are imposed upon French linens (or lawns). By 43 Geo. III., c. 69, every calico printer, and every printer, painter, or stainer of linens, cottons, or stuffs shall pay annually for a license £10. The printing or staining of calicoes must be for exportation: because by 7 Geo. I., stat. 1, c. 7, the use of printed, painted, stained, or dyed calico for wearing apparel is prohibited, on pain of £5 to the informer, on conviction: and a person offering such for sale, unless for exportation, forfeits £20, half to the informer and half to the poor. This prohibition, however, does not extend to calicoes dyed wholly blue: and it shall be lawful to use stuff made of linen yarn and cotton wool manufactured, and printed or painted in Great Britain, provided the warp thereof be wholly linen yarn. 9 Geo. II., c. 4. By 14 Geo. III., c. 72, it is enacted that no greater duty shall be paid for stuffs made of raw cotton wool within this kingdom than 3½d. a yard, 43 Geo.

III., c. 69, and that any person may use the same in apparel or otherwise: and every piece is to have three blue stripes in both selvages, and to be stamped at each end with a stamp provided by the officers of excise; and, instead of the word calico, used for foreign calicoes, each piece shall be marked with the words *British Manufactory*. If stuffs made wholly of cotton, and printed, painted, stained, or dyed stuffs (muslins, neck-cloths, and fustians excepted), without such mark shall be exposed to sale, they shall be forfeited, and £50 for each piece. If any person shall counterfeit such stamp, or knowingly sell such stuffs with a counterfeit stamp, he shall be guilty of felony without benefit of clergy. If any person shall import any calicoes, muslins, or other stuffs made of linen yarn only, or of linen yarn and cotton wool mixed, or wholly of cotton wool, in which shall be woven in the selvedge any such blue stripe, he shall forfeit the same and £10 for each piece. Every such printer, painter, stainer, or dyer, shall give notice in writing, at the next office, of his name and place of abode, and where he intends to work, on pain of £50. 10 Anne c. 19; 25 Geo. III., c. 72. By 1 Geo. II., stat. 2, c. 34, any person undertaking to print, paint, &c., any silks, linens, or stuffs, at any other place than the place of his usual residence or exercise of his trade, shall first make entry of the place, and pay the duties, on pain of £50, and forfeiture of the goods. Officers may enter at all times, by day or night, to take account, &c., and the penalty of obstructing the officer in the execution of his duty is £200. 10 Anne c. 19; 25 Geo. III., c. 72. Goods shall be entered once in six weeks on oath before the collector or supervisor, on pain of £50. 10 Anne c. 19. No person shall begin to print, stain, paint, or dye any goods before they have been measured and marked, on pain of forfeiting the same, and also £20 for every piece. 25 Geo. III., c. 72. If any printer shall wilfully cut out or deface such frame-mark, he shall forfeit £50. Concealing goods, or avoiding duty, incurs a forfeiture of £50; and all goods found in a place of which no notice has been given, or the value thereof, shall be forfeited. 10 Anne c. 19; 25 Geo. III. c. 72. Nor shall goods be kept in unentered places on pain of forfeiting £50, and the goods. 20 Geo. III., c. 72. Within six weeks the duties shall be cleared, on pain of forfeiting double. 10 Anne c. 19. Nor shall they be removed before the officer has taken account of them and stamped them, on pain of £50, and seizure. 10 Anne c. 19; 25 Geo. III., c. 72. Goods surveyed shall be kept separate from those unsurveyed, on pain of £50; and goods unstamped may be searched for and seized. 10 Anne c. 19; 25 Geo. III., c. 72. The person in whose custody such goods are found shall forfeit £100. 5 Geo. III., c. 11; 27 Geo. III., c. 31.

Calicoes, &c., that shall not have three blue threads in the selvedge, shall be deemed foreign calicoes; and, on being printed or dyed, shall be marked at each end with the words *'foreign calicoes for exportation;'* and every dealer who shall have any such goods in his custody (except dyed throughout of one color), or any stuffs

made wholly of cotton wool woven in Great Britain, commonly called *'British manufactory,'* (muslins, neckcloths, and fustians, excepted), not having such blue threads, shall forfeit £200, and every such piece found in his custody. 25 Geo. III. c. 72. The owner or printer of any piece or remnant of cossac, or foreign muslins and calicoes, shall, before they be presented to the officer, mark the same at both ends with a frame-mark, containing his name and place of abode, and also the name by which such goods are commonly known (except such as are dyed throughout of one color), on pain of forfeiting £10 for every piece or remnant. The owner or printer of any linens or stuffs made of cotton mixed, or wholly of cotton wool woven in Great Britain, called *'British manufactory or muslins,'* shall mark the same at both ends (fustians, velvets, velverets, dimities, and other figured stuffs, excepted) with a mark, containing his name and place of abode, and the name and quality of such goods, with the ready-money price thereof, before the same are presented to the officer in order to be printed or dyed, on pain of forfeiture, and seizure, and £20; and, if any such piece be marked at a less price than the real value, the same may be seized and forfeited, and the owner shall forfeit £20. If the frame-mark be defaced, the same shall be renewed on notice; but if any person shall counterfeit or forge any frame-mark, he shall forfeit £100; and, if any person counterfeit the stamp, it is felony without benefit of clergy. 25 Geo. III. c. 72; 27 Geo. III. c. 31. If any person shall knowingly sell any of the goods with a counterfeit stamp, he shall forfeit £100, and stand two hours in the pillory. 10 Anne, c. 19; 13 Geo. III. c. 56; 25 Geo. III. c. 72. By 27 Geo. III. c. 31, if any person shall knowingly sell any such goods with counterfeit stamp, thus intending to defraud his majesty, he shall be guilty of felony without benefit of clergy. Every person who has paid the duties, or bought the goods of any person who has paid the duties, may export the same, and shall be allowed all the duties in drawback, as set forth in 43 Geo. III. c. 69, Sched. C., on conforming to certain prescribed conditions. 25 Geo. III. c. 72; 25 Geo. III. c. 74. By the 4 Geo. III. c. 37, which establishes the corporation of the English Linen Company for making cambrics and lawns, it is enacted that the commissioners of excise, where there shall be a manufactory of cambrics or lawns, or of goods known under that denomination, shall appoint the supervisor or other officer to seal the same, for which they shall have such fee as the commissioners shall appoint; the manufacturer to give notice in writing to the officer of the finishing of every piece, before it is taken out of the loom, who shall seal the same at both ends; on pain that such manufacturer, taking the same out of the loom without having given such notice, and having the same sealed as aforesaid, shall forfeit £5; and every such piece shall be forfeited, and may be seized by any officer of the customs or excise; and the officer, with convenient speed after notice, shall mark and also number each piece; and make entry in writing, in books to be provided at the expense of the manufacturer,

of the number set to each piece, the length thereof, and the number of threads in the warp, on pain of £10. If the officer shall mark any not made in England, or after the same is taken out of the looms, he shall forfeit £50 for each piece to him who shall sue, and forfeit his office, and be incapacitated to hold any other office of trust under the crown. If any person shall offer to the officer any bribe, he shall forfeit £50; and if he shall by bribery, or otherwise, prevail upon the officer to commit such offence, he shall forfeit £100, and stand in the pillory two hours. And the officer shall yearly, in the month of June, transmit to the commissioners an account of all goods which he shall have stamped, and a copy of the entries made, on pain of dismission; and he, or his executors, shall deliver up the seals, on demand from the commissioners, on pain of £200. Cambrics and lawns made in England, found unstamped, shall be forfeited, and may be seized by any officer of the customs or excise, and, after condemnation, shall be sold; and every person who shall sell, or expose to sale, or have in his custody for that purpose, any cambrics or lawns made in England, unmarked, shall forfeit £200: such goods not to be sold, or worn in this kingdom, but to be exported, and to be sold only on condition of exportation. Nor shall they be delivered out of the warehouse until bond be given, to the satisfaction of the collector, in double penalty of the goods, that

the same shall be exported, and not relanded. To counterfeit the seal appointed by this act, or import any foreign cambrics or lawns having such counterfeit mark thereon, or expose the same to sale, knowing the stamp thereon to be counterfeited, is felony without benefit of clergy. All goods condemned in pursuance of this act, and all pecuniary forfeitures (not otherwise directed), shall be sued for and recovered in any of his majesty's courts, in the name of the attorney-general, or of such officer as aforesaid; and applied, after deduction of charges, half to the king, and half to the officer seizing, informing, or suing, according to the directions of this act. The penalties may be sued for, levied, and mitigated, as by the laws of excise, or in the courts at Westminster; and employed half to the king, and half to him that shall discover, inform, or sue. 10 Anne, c. 19; 24 Geo. II. c. 40; 25 Geo. III. c. 72. All utensils and instruments for printing, painting, staining, or dyeing such goods, in custody of the said person, or any other, shall be liable to all arrears of the duty, and to all penalties concerning the same, in like manner as if such person was the lawful owner. 10 Anne, c. 19; 25 Geo. III. c. 72; 28 Geo. III. c. 37.

A few statistical tables, illustrative of this branch of our manufacture, must conclude our article. We shall commence with an enumeration of

The species and quantities of FOREIGN LINENS imported and exported from GREAT BRITAIN and IRELAND, in the year ending 5th of January, 1826.

COUNTRIES FROM WHICH IMPORTED.	Plain of Germany, Silesia, &c.	Plain of Russia.	Plain of Netherlands.	Can-vas, Hes-sen.	Can-vas, Pack-ing, or Spruce.	Hinder-lands and Brown.	Dril-lings and Pack Duck.	Sail Cloth.	Damask and Dia-per of Silesia, &c.	Damask and Dia-per of the Netherlands.	Cam-brics and French Lawns.	Silesia Lawns.	Sails.	Unrated, Chequered, Striped, &c.	Unrated, Chequered, Striped, &c.
	Ells.	Ells.	Ells.	Ells.	Ells.	Ells.	Ells.	Ells.	Yards.	Yards.	Pieces.	Pieces.	Declared Value. £ s. d.	Declared Value. £ s. d.	Declared Value. £ s. d.
Russia . . . . .	.	186,841½	.	.	750	.	2848½	166	.	.	.	.	102 11 7	.	16 1 0
Sweden . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	130 13 0	.	49 2 0
Denmark . . . . .	.	.	.	.	830	.	.	.	.	.	.	.	42 5 11	.	202 2 1
Prussia	35	.	.	.	637	.	.	.	.	.	6	.	80 8 0	.	185 9 4
Germany	37,310	20	.	67 2,021½	92	51	.	.	45,494½	.	.	70½	51 18 10	.	3 0 0
Holland	4514½	.	275	109 2,234½	.	.	.	.	15	.	.	75	36 1 10	1 5 0	15 9 0
Flanders	3445	.	9824½	75	339½	42	.	.	89½	142	40,297½	.	165 0 0	415 11 6	634 5 7
France	1495	.	.	.	67	.	.	.	.	.	.	.	.	19 16 0	0 5 0
Jersey	10½	88	.	17	.	.	.	.	190½	.	.	.	94 17 0	219 3 9	68 11 0
Other countries in Europe	1851½	24½	.	.	.	.	.	.	.	.	.	.	325 5 0	.	.
East Indies . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	179 8 8	0 5 0	8 15 10
America, &c. . . . .	.	.	.	.	640	.	.	.	.	.	.	.	.	.	.
Total into Great Britain	48,661½	186,974	10,099½	193 7,594½	92	2941½	166	45,790½	144½	40,303½	145½	1208 9 10	656 6 3	1182 15 10	.
Russia . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	32 0 0	.	.
Prussia . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	50 0 0	.	8 0 0
Germany . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	58 7 8
Holland . . . . .	.	.	.	55	.	.	.	.	.	.	50½	.	123 2 10	.	.
France . . . . .	.	.	.	.	.	.	17½	.	.	.	.	.	.	.	.
America . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total into Ireland . . . . .	.	.	.	55	.	.	17½	.	.	.	50½	.	205 2 10	.	66 7 8
Total quantities of Foreign Linen imported into the United Kingdom	48,661½	186,974	10,099½	248 7,594½	92	2941½	183½	45,790½	144½	40,354½	145½	1413 12 8	656 6 3	1249 3 6	.

COUNTRIES TO WHICH EXPORTED.	Plain of Germany, Silesia, &c.	Plain of Russia.	Plain of the Nether-lands.	Canvas. Hessen.	Canvas, Packing land's or Spruce.	Drill-ings and Pack Duck.	Sail Cloth.	Damask and Diaper of Silesia, Nether-lands, &c.	Damask and Diaper of the French Lawns.	Can-brics and French Lawns.	Silesia Lawns.	Sails.	Unrated, Chequered, Striped, &c.	Unrated, not Chequered, Striped, &c.
	Ells.	Ells.	Ells.	Ells.	Ells.	Ells.	Ells.	Yards.	Yards.	Pieces.	Pieces.	Declared Value. £. s. d.	Declared Value. £. s. d.	Declared Value. £. s. d.
Germany	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Holland	.	.	.	.	.	.	.	.	.	.	.	.	.	.
France	.	16,800	.	.	.	.	.	.	.	.	.	.	.	.
Madeira and Canaries	.	.	.	.	.	.	.	.	.	.	.	.	.	168 0 0
Asia	.	.	.	.	.	.	.	.	.	5	.	.	.	.
Africa	.	.	.	.	.	.	.	.	.	7	.	.	.	.
America, British North America, American Colonies	.	.	.	.	.	.	.	.	.	.	.	.	.	48 0 0
British West Indies	.	.	.	.	.	.	.	74½	.	241	.	.	.	16 15 4
Foreign West Indies	.	.	.	.	.	.	.	.	.	251	.	.	.	1 0 0
Mexico	925	9,000	.	.	.	.	.	37½	.	88	.	.	.	1 4 0
Total from Great Britain	925	25,800	.	.	.	.	.	112	.	592	.	.	217 13 9	234 19 4
Export from Ireland.														
America, British North America, American Colonies	.	.	.	.	.	.	.	.	.	.	.	102 4 7	.	.
United States	.	.	.	.	.	.	.	.	.	11	.	.	.	.
Total from Ireland	.	.	.	.	.	.	.	.	.	11	.	102 4 7	.	.
Total Quantities of Foreign Linen exported from the United Kingdom	925	25,800	.	.	.	.	.	112	.	603	.	102 4 7	217 13 9	234 19 4

An Account of the quantity of LINEN CLOTH of all sorts exported from GREAT BRITAIN to IRELAND, and to foreign countries, in the year ending 5th of January, 1826; distinguishing British, Irish, and foreign linens.

	To Ireland.				To Foreign Countries.				Total Export.			
	Pieces.	Yards.	Pieces.	Yards.	Pieces.	Yards.	£. s. d.	£. s. d.	Pieces.	Yards.	£. s. d.	£. s. d.
British Linens	.	.	.	.	.	.	.	.	.	.	.	.
Irish Linens	.	132,671	.	35,991,753	.	13,534,843	.	.	.	36,124,424	.	.
Foreign Linens	.	270,350	.	112	.	26,725	452 13 1	.	1,070	13,805,193	.	.
	478	.	592	.	26,725	.	112	.	1,070	112	452 13 1	.
Total	478	403,021	592	49,526,708	26,725	49,526,708	452 13 1	.	1,070	49,929,729	452 13 1	.

The value of the Irish linens will be best seen by an account of the number of yards, with their real and official value, exported from Great Britain and Ireland respectively, in the year ending 5th January, 1826, upon which no bounty was claimed.

Great Britain.				Ireland.				The United Kingdom.			
Quantity.	Official value.	Real or declared value.	Quantity.	Official value.	Real or declared value.	Quantity.	Official value.	Quantity.	Official value.	Real or declared value.	Real or declared value.
Yards.	£. s. d.	£. s. d.	Yards.	£. s. d.	£. s. d.	Yards.	£. s. d.	Yards.	£. s. d.	£. s. d.	£. s. d.
1,985,319	100,634 13 0	194,687 9 8	433,825	26,696 18 6	50,612 18 4	2,419,144	127,331 11 6	2,419,144	127,331 11 6	245,480 8 0	245,480 8 0

The following is an account of the number of yards of linen cloth on which duties of excise have been paid in the year ending 5th of January, 1826, for painting and printing linen both respectively, with the rates of duty paid per square yard.

Linen cloth painted at 3½d. per square yard.	Linen cloth printed at 3½d. per square yard.
Yards. 554,721	Yards. 1,378,356

LING, *n. s.* Isl. and Goth. *ling*; Dan. *lyng*. Heath; brake. The former sense is retained in the northern counties; yet Bacon seems to distinguish them.

Heath, and *ling*, and sodges.

Bacon's Natural History.

LING, *n. s.* Belg. *linghe*; Swed. *linga*. A kind of sea fish.

When harvest is ended, take shipping, or ride, *Ling*, salt fish, and herring, for Lent to provide.

Tusser.

Our English bring from thence good store of fish.

but especially our deepest and thickest *ling*, which are therefore called island *lings*. *Abbot.*

LING. See *GADUS*.

LINGELBACH, or **LINGELBACK** (John), an excellent painter, born at Franckfort on the Maine, in 1625. He learned the art in Holland, but perfected himself at Rome; where he studied till 1650, when he settled at Amsterdam. His usual subjects are fairs, mountebanks, sea-pieces, and landscapes, which he executed well, and enriched with antiquities. His sea-fights are full of expression. He had also great readiness in painting figures and animals, and was employed by other artists to adorn their landscapes with such objects. He died in 1687.

LINGEN ISLE, an island in the Eastern Seas, of irregular figure and situated off the north-east coast of Sumatra. It is fifty miles in length, and thirty in breadth, and is remarkable for a mountain in its centre, terminating in a fork, which the seamen have distinguished by the name of *Ass's Ears*. It is much frequented, and indeed possessed by Malay pirates. The equinoctial line passes through it.

LINGER, *v. n. & v. a.* } Sax. *lmg, leng, long.*

LINGERINGLY, *adv.* } To remain (i. e. stay long); particularly to remain in pain, languor, idleness, or suspense. Generally used respecting a culpable or painful delay: barbarously used by Shakspeare as an active verb, or in the sense of to protract; draw out: lingeringly is tediously; in a delaying manner.

And while he *lingered*, the men laid hold upon his hand; and they brought him forth. *Gen. xix. 16.*

Let order die,

And let this world no longer be a stage

To feed contention in a *lingering* act. *Shakspeare.*

We have *lingered* about a match between Anne Page and my cousin Slender, and this day we shall have our answer. *Id.*

She doth think, she has strange *lingering* poisons. *Id.*

I can get no remedy against this consumption of the purse. Borrowing only *lingers* and *lingers* it out, but the disease is incurable. *Id.*

Perhaps thou *lingerest*, in deep thoughts detained Of the enterprise so hazardous and high. *Milton.*

Of poisons, some kill more gently and *lingeringly*, others more violently and speedily, yet both kill. *Id.*

Not accompanied with so acute torments, nor with so *lingering* pains, nor with so utter a ruin as might have been inflicted. *Barrow.*

Should not a *lingering* fever be removed,
Because it long has raged within my blood?

Dryden.

Ye brethren of the lyre, and tuneful voice,
Lament his lot; but at your own rejoice.

Now live secure, and *linger* out your days;
The gods are pleased *alone* with Purcell's lays. *Id.*

Like wretches, that have *lingered* long,
We'll snatch the strongest cordial of our love. *Id.*

Your very fear of death shall make ye try
To catch the shade of immortality;
Wishing on earth to *linger*, and to save
Part of its prey from the devouring grave. *Prior.*

Better to rush at once to shades below,
Than *linger* life away, and nourish woe.

Pope's Odyssey.

Sir,—For some months past I have been rambling over the country; but I am now confined with some lingering complaints, originating, as I take it, in the stomach. *Burns.*

Straight be thy course: nor tempt the maze that leads
Where fell Remorse his shapeless strength conceals,
And oft Ambition's dizzy cliff he treads,
And slumbers oft in Pleasure's flowery vales.

Nor *linger* unresolved. *Beattie.*

LING'ET, or } Fr. *linget*, iron; Span. *ingot*.
LIN'GUET, *n. s.* } A small piece of metal.

Other matter hath been used for money, as, among the Lacedemonians, iron *linguets* quenched with vinegar, that they may serve to no other use. *Camden.*

LING'O, *n. s.* } Port. *lingua*, from
LINGUA'CIOUS, *adj.* } the Lat. *lingua*, the
LINGUADENT'AL, *adj.* } tongue, the origin of
LINGUIST. } the other words. *Lingu-*

guacious is full of tongue; loquacious; talkative: linguadental, Lat. *lingua* and *dens*, uttered by the joint action of the tongue and teeth: linguist, a professor of languages, or one skilled in various languages.

Though a *linguist* should pride himself to have all the tongues that Babel cleft the world into, yet, if he had not studied the solid things in them, as well as the words and lexicons, he were nothing so much to be esteemed a learned man, as any yeoman or tradesman competently wise in his mother dialect only. *Milton.*

The *linguadentals*, *f, v*, as also the *linguadentals*, *th, dh*, he will soon learn.

Holder's Elements of Speech.

Our *linguist* received extraordinary rudiments towards a good education. *Addison's Spectator.*

I have thoughts to learn somewhat of your *lingo*, before I cross the seas. *Congreve.*

This then, if fostered by the hand of a skilful *linguist*, this science might perhaps, in time, come nearer than any other to realize the extravagant idea of the ingenious but romantic Bishop Wilkins, of an universal language. *Canning.*

LINGONES, an ancient people of Gallia Belgica, who inhabited part of Champagne, now in the department of the Upper Marne. They were conquered by Julius Cæsar, and made tributaries to Rome. They afterwards emigrated into Italy, and settled on the Adriatic, near the Alps.

LING-TAO, a city of China of the first rank, in the province of Chen-si, in a fertile territory, abounding with gold, corn, fruits, cattle, tigers, wild bulls, &c.: 672 miles W. S. W. of Peking. Long. 121° 20' E. of Ferro, lat. 35° 22' N.

LIN'IMENT, *n. s.* Fr. *liniment*; Lat. *linimentum*. Ointment; balsam; unguent.

The nostrils, and the jugular arteries, ought to be anointed every morning with this *liniment* or balsam. *Harey.*

The wise author of nature hath provided on the rump two glandules, which the bird catches hold upon with her bill, and squeezes out an oily pap or *liniment*, fit for theunction of the feathers. *Itay.*

A **LINIMENT**, in pharmacy, is somewhat thinner than an unguent, and thicker than an oil. used for anointing different parts of the body. The materials proper for composing liniments are, fats, oil, balsams, and whatever enters the composition of unguents and plasters.

LINK, *n. s. & v. a.* Teut. *gelenke*; Dan. and Isl. *lanke*; Swed. *lank*. A part or ring of a

chain; a loop; any thing connected in its parts by loops or rings, and any single part of such thing: to connect together; enchain; unite; or concatenate.

But fair Clarissa to a lovely frere
Was *linked*, and by him had many pledges dear.

Fuërie Queene.

They make an offer of themselves into the service of that enemy, with whose servants they *link* themselves in so near a bond.

Hooker.

These things are *linked*, and, as it were, chained one to another: we labour to eat, and we eat to live, and we live to do good; and the good which we do is as seed sown, with reference unto a future harvest.

Id.

The Roman state, whose course will yet go on
The way it takes, cracking ten thousand curbs
Of more strong *links* asunder, than can ever
Appear in your impediment.

Shakspeare. Coriolanus.

They're so *linked* in friendship,
That young prince Edward marries Warwick's daughter.

Shakspeare.

Blood in princes *linked* not in such sort,
As that it is of any power to tye.

Daniel's Civil War.

God has *linkt* our hopes and our duty together.
Decay of Piety.

I feel

The *link* of nature draw me; flesh of flesh,
Bone of my bone thou art.

Milton's Paradise Lost.

Descending tread us down,
Thus drooping; or with *linked* thunderbolts
Transfix us to the bottom of this gulph.

Milton.

Married to immortal verse,
Such as the meeting soul may pierce
In notes, with many a winding bout
Of *linked* sweetness long drawn out.

Id.

The thread and train of consequences in intellective
ratiocination is often long, and chained together by
divers *links*, which cannot be done in imaginative
ratiocination, by some attributed to brutes.

Judge Hale.

Truths hang together in a chain of mutual dependence; you cannot draw one *link* without attracting others.

Glauville.

So gracious hath God been to us, as to *link* together our duty and our interest, and to make those very things the instances of our obedience, which are the natural means and causes of our happiness.

Tillotson.

Fire, flood, and earth, and air, by this were bound,
And love, the common *link*, the new creation crowned.

Dryden's Knight's Tale.

By which chain of ideas thus visibly *linked* together in train, i. e. each intermediate idea agreeing on each side with those two it is immediately placed between, the ideas of men and self-determination appear to be connected.

Locke.

Make a *link* of horse hair very strong, and fasten it to the end of the stick that springs.

Mortimer.

Though I have here only chosen this single *link* of martyrs, I might find out others among those names which are still extant, that delivered down this account of our Saviour in a successive tradition.

Addison on the Christian Religion.

While she does her upward flight sustain,
Touching each *link* of the continued chain,
At length she is obliged and forced to see
A first, a source, a life, a deity.

Prior.

So from the first eternal order ran,
And creature *linked* to creature, man to man.

Pope.

The three principal *links* in this chain are sympathy, imitation, and ambition.

Burke on the Sublime.

Ask not the boy, who, when the breeze of morn
First shakes the glittering drops from every thorn,
Unfolds his flock, then under bank or bush
Sits *linking* cherry stones, or plating rush,
How fair is Freedom?

Cowper.

Steel were the knots, and steel the twisted thong,
Ring *linked* in ring, indissolubly strong;
On viewless hooks along the fretted roof
Hehung, unseen, the inextricable woof.

Darwin.

'Tis something, in the dearth of fame,
Though *linked* among a fettered race,
To feel at least a patriot's shame,
Even as I sing, suffuse my face.

Tygon.

LINK, *n. s.* } Goth. *lugin*; Gr. *λυχνος*. A
LINKBOY, } torch of pitch: link boy or
LINKMAN, } man, the bearer of this useful
invention.

O, thou art an everlasting bonfire light; thou
hast saved me a thousand marks in links and torches,
walking with thee in the night betwixt tavern and
tavern.

Shakspeare. Henry IV.

There was no *link* to colour Peter's hat.

Shakspeare.

Whereas history should be the torch of truth, he
makes her in divers places a fuliginous *link* of lies.

Howel.

One that bore a *link*

On a sudden clapped his flaming cudgel,
Like linstock to the horse's touch-hole.

Hudibras.

What a ridiculous thing it was, that the continued shadow of the earth should be broken by sudden miraculous disclusions of light, to prevent the officiousness of the *linkboy*!

Morr.

Round as a globe, and liquored every chink,
Goodly and great he sails behind his *link*.

Dryden.

Though thou art tempted by the *linkman's* call,
Yet trust him not along the lonely wall.

Gay.

In the black form of cinder-wench she came,
O may no *linkboy* interrupt their love!

Id.

LINLITHGOW (from Lin, Gael. i. e. a lake, lith, a twig, and gow, a dog), a royal borough in Scotland, capital of the county. The name is said to allude to a black bitch, which, according to tradition, was found tied to a tree in a small island, on the east side of the lake, near which the town stands. This etymology seems confirmed from the figure of the black bitch making part of the town's armorial bearing, on its public seal. Others, however, derive the name from lin, a lake, lith, snug or close, and gow, a vale, which seems confirmed from its situation. It was a royal borough in the time of David I. On the accession of the house of Stuart it became a royal residence. James IV. was much attached to it, and built the east part of the palace, which has been peculiarly magnificent. Several queens of Scotland held it as their jointure. It is built of polished stone, and covers an acre of ground forming a square with towers at the corners, and standing on a gentle eminence, with the lake behind it on the west. It was greatly ornamented by James V. and VI. Within it is a handsome square; one side of which was built by James VI., and kept in repair till 1746, when it was accidentally damaged by the king's troops

making fires on the hearths, by which the joists were burnt. A stone ornamental fountain in the middle of the court was destroyed at the same time. The other sides of the square are more ancient. Narrow galleries run quite round the old part, to preserve communications with the rooms; in one of which the unfortunate Mary queen of Scots was born. The town consists of one open street of stone houses, three-quarters of a mile long, with lanes on each side, and gardens on the north and on the south. On the north side of the High Street, on an eminence east of the palace, stands St. Michael's church. In the market place is another fountain of two stories with eight spouts, and surmounted like the former with an imperial crown. The gallery, whence the regent Murray was shot, is still to be seen. The house of Carmelites, founded in 1290, was destroyed by the reformers in 1559. This borough is governed by a provost, four bailies, dean of guild, treasurer, twelve merchant-councillors, and eight deacons of incorporations. The market is on Friday, and there are six fairs. A considerable trade is carried on in leather, flax, wool, stockings, linen, porter, ale, &c. Linlithgow is two miles south of Borrowstownness, its port, and sixteen west of Edinburgh.

LINLITHGOW. See LOTHIAN WEST.

LINNE' (Sir Charles), the celebrated reformer of botany and natural history, was born on May 24th, 1707, in a village called Roeskult in Småland, where his father, Nicholas Linné was then vicar. The name assumed by this great man, even in his Latin works, is neither Lindelius, nor Linnæus, but Linné, which seems to be the real Swedish name of the family. In his Latin works, printed in Sweden, he styles himself Carolus à Linné. How he came to be styled Linnaeus by foreigners is therefore not easily accounted for.

His taste for botany seems to have been imbibed from his father; who cultivated a garden plentifully stored with plants, by way of amusement. Young Linné soon became acquainted with these, as well as with the indigenous ones of his neighbourhood. In 1717 he was sent to school at Wexjö; where, as his opportunities were enlarged, his progress in all his favorite pursuits was proportionably extended; and even at this early period he began to study the natural history of insects. Professor Stobæus, under whom he received the first part of his academical education at Lund, in Scania, favored his inclination to natural history. He removed in 1728 to Upsal, where he contracted a close friendship with Artedi, a native of Angermania, who had been four years a student in that university, and had a strong bent to natural history, particularly ichthyology. Soon after his arrival at Upsal, he obtained the favor of several gentlemen of established character in literature. He was particularly encouraged in the pursuit of his studies by Dr. Olaus Celsius, then professor of divinity, and the restorer of natural history, in Sweden; who, being struck with the accuracy of Linné in describing the plants of the garden at Upsal, admitted him to his house, his table, and his library. Under his patronage Linné made such a rapid progress, that in two years he was thought qualified to give lectures in the botanic chair, in the

room of professor Rudbeck. In 1731 the Royal Academy of Sciences at Upsal, with a view to improve the natural history of Sweden, at the instance of professors Celsius and Rudbeck, deputed Linné to make the tour of Lapland, and explore the natural history of that arctic region. He left Upsal the 13th of May, by the route of Gevalia, the capital of Gestrícia, forty-five miles from Upsal, and travelled through Helsingland into Medelpadia. Thence he went through Angermanland to Hernösand, a sea-port on the Bothnic Gulf; where he visited the remarkable caverns on the summit of mount Skula, though at the hazard of his life. Arriving at Uma, in West Bothnia, he quitted the public road, and took his course through the woods westward, to the most southern parts of Lapland. Though a stranger to the language and manners of the people, and without any associate, he trusted to the hospitality of the inhabitants, and mentions, with peculiar satisfaction, the innocence and simplicity of their lives. He now arrived at the mountains of Norway, and, after encountering great hardships, returned to West Bothnia; visited Pitha and Lula, on the gulf of that name; from which last place he took a western route, proceeding up the river Lula, and visited the ruins of the temple of Jockmock in Lappmark: thence he traversed the Lapland desert, destitute of all villages, cultivation, roads, or any conveniences, and inhabited only by a few straggling people, originally descended from the Finlanders. Hence he crossed the Lapland Alps into Finmark, and traversed the shores of the North Sea as far as Sallero. These journeys were made on foot, attended by two Laplanders, as his interpreter and guide. In descending a river, he narrowly escaped perishing by the upsetting of the boat, and lost many of the natural productions he had collected. He now spent the greater part of the summer in examining this arctic region, and those mountains on which, four years afterwards, the French philosophers secured immortal fame to Sir Isaac Newton. At length, after having suffered incredible fatigues and hardships, he returned in September to Tornö. Having next resolved to visit and examine the country on the east side of the gulf, his first stage was to Ula in East Bothnia; thence to Old and New Carleby, eighty-four miles south of Ula. He continued his route through Wasa, Christianstadt, and Bjerneburgh, to Abo, a small university in Finland. As winter was at this time setting in, he crossed the gulf by the island of Åland, and arrived at Upsal in November, after having performed, mostly on foot, a journey of 10° of lat. in extent, exclusively of numberless deviations. In 1733 he visited and examined the mines in Sweden. The outlines of his system of mineralogy appeared in the early editions of the *Systema Naturæ*; but he did not exemplify the whole until 1768. In 1734 he was sent by baron Reuterholm, governor of Dalecarlia, with several other naturalists in that province, to investigate the productions of that part of the Swedish dominions; and published the result under the title of *Pan Suecus*, in the second volume of the *Amœnitates Academicæ*. After this expedition, Linné resided some time at Fahlun, the chief

own in Dalecarlia; where he taught mineralogy, and practised physic. He contracted at this time in intimacy with a daughter of Dr. More, the physician of the place, whom he married about five years afterwards. In 1735 he travelled over many parts of Sweden, Denmark, and Germany, and fixed in Holland, where he chiefly resided until his return to Stockholm, about 1739. In 1735 he took his degree of M. D., and published the first sketch of his *Systema Naturæ*, in the form of tables, in twelve pages folio. By this it appears that he had, before he was twenty-four years old, laid the basis of that structure which is afterwards erected to the increase of his own fame, as well as of natural science. In 1736 he came to England, and visited Dr. Dillenius, of Oxford, whom he justly considered as one of the first botanists in Europe. He mentions the privilege he gave him of inspecting his own and the Sherardian collection of plants. He also became acquainted with Dr. Martyn, Mr. Rand, Mr. Miller, and Dr. Isaac Lawson, and Mr. Peter Collinson.

Early in 1738 Linné had a long and dangerous fit of sickness; and upon his recovery went to Paris, where he was entertained by the Jussieus, then the first botanists in France. The opportunity this gave him of inspecting their Herbaria, as well as those of Surian and Tournefort, afforded him great satisfaction. He did not fail to avail himself of every advantage which access to the several museums of that country afforded him in every branch of natural history; and the number and importance of his publications, during his absence from Sweden, demonstrate the fund of knowledge which he had accumulated before, as well as his extraordinary application. These were, *Systema Naturæ*, *Fundamenta Botanica*, *Bibliotheca Botanica*, and *Genera Plantarum*; the last of which is justly considered as the most valuable of all his works. Before the publication of the first edition, the author had examined the characters of 8000 flowers. The last book he published, during his stay in Holland, was the *Classes Plantarum*, which is a copious illustration of the second part of the *Fundamenta*. About the end of 1738, or beginning of 1739, he settled as a physician at Stockholm. By the interest of count Tessin, his patron, he obtained the rank of physician to the fleet, and a salary for giving lectures on botany. The establishment of the Royal Academy of Sciences at Stockholm, was highly favorable to the advancement of his character and fame; he was constituted the first president. By the rules of the academy, this officer held his place but three months. At the expiration of that term, Linné made his *Oratio de memorabilibus in Insectis*, October 3d, 1739; in which he endeavours to excite an attention to entomology. In 1741, upon the resignation of Dr. Roberg, he was constituted professor of physic and physician to the king of Sweden. During the interval of his removal from Stockholm to Upsal, in consequence of this appointment, he was deputed by the states to make a tour to the islands of Oeland and Gothland in the Baltic, attended by six pupils. On his return he pronounced before the university his *Oratio de Pægrinationum intra*

Patriam necessitate, October 17th, 1741. Linné was now fixed in the situation best adapted to his character, taste, and abilities; but, when he was appointed professor, the garden did not contain above fifty exotic plants. His correspondence with the first botanists in Europe soon supplied him with great variety. He received Indian plants from Jussieu of Paris, and Van Royen of Leyden; European plants from Haller and Ludwig; American plants from the late Mr. Collinson, Mr. Catesby, and others; and many annuals from Dillenius. How much the garden owed to his diligence and care, in a few years, may be seen by the catalogue entitled *Hortus Upsaliensis, exhibens Plantas exoticas horto Upsaliensis Academicæ a sese (Linnæo) illatas ab anno 1742, in annum 1748; additis differentiis, synonymis, habitationibus, hospitibus, rariorumque descriptionibus, in gratiam studiosæ juventutis*; Holm. 1748, 8vo. pp. 306, tab. 3. By this it appears, that he had introduced 1100 species, exclusively of all the Swedish plants and of varieties; which last, in ordinary gardens, often amount to one-third of the whole. The fame which Linné had now acquired by his *Systema Naturæ*, of which a sixth edition, much enlarged, had been published at Stockholm in 1748, in 8vo., with plates and eight tables explanatory of the classes and orders, had brought him a conflux of every thing rare and valuable in every branch of nature and from all parts of the globe. The king and queen of Sweden had their separate collections of rarities; the former at Ulricdsdahl; the latter, very rich in exotic insects and shells, procured at great expense, at the palace of Drottningholm; both of which our author was employed in arranging and describing. The museum of the royal academy of Upsal had also been augmented by a considerable donation from the king, whilst hereditary prince, in 1746; by another from count Gyllenborg in 1745; by a third from M. Grill, an opulent citizen of Stockholm.

Linné from this time sustained a more elevated rank. His reputation had procured him honors from almost all the royal societies in Europe; and Adolphus Frederick created him in 1753 a knight of the polar star, and in 1757 a noble of Sweden. His successor Gustavus III. doubled his pension in 1776, and settled a liberal donation of landed property on his family. In reply to an invitation to Madrid from the king of Spain, with the offer of a pension for life of 2000 pistoles, letters of nobility, and the free exercise of his own religion, he returned for answer, 'that if he had any merits they were due to his own country.' Soon after this Linné obtained the *præmium centum aureorum*, proposed by the imperial academy of sciences at Petersburg, for the best paper written to establish or disprove by new arguments the doctrine of the sexes of plants.

Linné, on the whole, enjoyed a good constitution, but was sometimes severely afflicted with a hemicrania, as well as with the gout. In the close of 1776 he was seized with an apoplexy, which left him paralytic; and at the beginning of 1777 suffered another stroke, which much impaired his powers. But the disease supposed to

have been the immediate cause of his death, was an ulceration of the urinary bladder; of which, after a tedious indisposition, he died, January 11th, 1778, aged seventy-one. His other principal works are, *Iter Oelandicum et Gotlandicum*: *Iter Scanicum*: *Flora Suecica*: *Materia Medica*: *Philosophia Botanica*: *Genera Morborum*: different papers in the *Acta Upsaliensia*, and the *Amœnitates Academicæ*. The last of his treatises was the *Mantissa Altera*, published in 1771; but before his death he had finished the greatest part of the *Mantissa Tertia*, afterwards completed and published by his son. On his death a general mourning took place at Upsal, and his funeral was attended by the whole university, and the pall supported by sixteen doctors of physic, all of whom had been his pupils. The king lamented his death in his speech to the states, and ordered a medal to be struck in his memory. Nor was Linné honored only in his own country. The professor of botany at Edinburgh, Dr. Hope, pronounced an eulogium in honor of him before his students, at the opening of his lectures in spring 1778, and erected a monument to his memory in the botanic garden there. He possessed a lively imagination, a strong judgment, the most retentive memory, unremitting industry, and the greatest perseverance in all his pursuits. Perhaps there is no circumstance of his life, however, which shows him in a more dignified light than his conduct towards his opponents. Disavowing controversy he replied to no one of them. He had a happy command of the Latin language; and has altogether, perhaps, advanced the literary honor of his country more than any other of her sons. Natural history arose in Sweden, under his culture, to a state of perfection unknown elsewhere; and was thence disseminated through all Europe.

L'INNET, *n. s.* Fr. *linot*; Lat. *linaria*. A small singing bird.

The swallows make use of celandine, the *linnet* of euphrasia, for the repairing of their sight.

More's Antidote.

Is it for thee the *linnet* pours his throat? Pope.

Congregated thrushes, *linnets*, sit

On the dead tree, a dull despondent flock.

Thomson.

Far dearer to me are yon humble broom bowers,

Where the blue-bell and gowan lurk lowly unseen;

For there, lightly tripping among the wild flowers,

A listening the *linnet*, aft wanders nay Jean.

Burns.

LINNET, in ornithology. See **FRINGILIA**. These birds build in hedges, as well as in furze bushes on heaths, but with very different materials. In hedges they use the slender filaments of the roots of trees, and the down of feathers and thistles; but on heaths they use moss, principally for the outer part, finishing it within with such things as the place affords. They have young ones three or four times a year, especially if they are taken away before they are able to leave the nests. When *linnets* are to be taught to whistle tunes, or to imitate the notes of any other bird, they must be taken from the old one when they are not above four days old; for at this time they have no idea of the note of the

old ones, and will be readily taught to modulate their voice like any thing that is most familiar to their ears, and within the compass of their throats. More care is required in feeding them when taken thus young, than when they are left in the nest till nearly fledged; but they will be reared very well upon a food half bread and half rape-seed boiled and bruised: this must be given them several times a day. It must be made fresh every day, and given sufficiently moist, but not in the extreme. If it be in the least sour, it gripes and kills them; and if too stiff it is as mischievous by binding them up. They must be hung up as soon as taken from the nest under the bird whose note they are intended to learn; or, if they are taught to whistle tunes, it must be done by giving them lessons at the time of feeding; for they will profit more while young in a few days than in a long time afterwards, and will take in the whole method of their notes before they are able to crack hard seeds. Some have attempted to teach them to speak, and they often arrive at some perfection in that art!

LINSEED, *n. s.* Lat. *semen lini*. The seed of flax, which is much used in medicine.

The joints may be closed with a cement of lime, linseed oil, and cotton. *Mortimer's Husbandry.*

Linseed cakes, in agriculture, is the name of such cakes as remain after the expression of the oil from flax seed. They are at present much used in the fattening of cattle, sheep, and other sorts of live stock, and of course of great value and importance to the farmer. *Dr. A. Rees.*

LINSEED, or more properly **LINT-SEED**, is the seed of the plant *linum*. Lint-seed steeped and bruised in water gives it very soon a thick mucilaginous nature, and communicates much of its emollient virtue to it. See **LINUM**.

LINSEYWOOLSEY, *adj.* From linen and wool. Linen and wool mixed: hence of different and unsuitable parts; vile; mean.

A lawless *linseywoolsey* brother,

Half of one order, half another. *Hudibras.*

Peeled, patched, and pyebald, *linseywoolsey* brothers,

Grave mummies! sleeveless some, and shirtless others. *Pope.*

LINSTOCK, *n. s.* Teut. *lunte* or *lente*, (a match cord), and stock. A staff of wood with a match at the end of it, used by gunners.

The nimble gunner

With *lynstock* now the devilish cannon touches,
And down goes all before him. *Shakspeare.*

The distance judged for shot of every size,

The *linstocks* touch, the pond'rous ball expires.

Dryden.

A **LINSTOCK**, or **LINTSTOCK**, in military affairs, is about three feet long, and has a sharp point on one end, and a fork or crotch on the other; the latter serves to contain a lighted match, and by the former the linstock is occasionally stuck in the ground, or in the deck of a ship during an engagement. It is used in small vessels, where one is fixed between every two guns, by which the match is always kept dry, and ready for firing.

LINT. Sax. *linet*; Lat. *linteum*. A flaxen substance; linen scraped.

I dressed them up with unguentum basilici cum vitello ovi, upon pledgets of lint.

Wiseman's Surgery.

Lint made up in an oval, or orbicular form, is called a pledget; if in a cylindrical form, or in the shape of a date olive-stone, it is called a dossil.

Dr. A. Rees.

LINT, in surgery, is made into various forms, which acquire different names according to the difference of their figures. Made up in an oval or orbicular form, it is called a pledget; in the shape of a date or olive-stone, as we have seen, a dossil. These different forms are required for many purposes; as 1. To stop blood in fresh wounds, by filling them up with dry lint before the application of a bandage: though, if scraped lint be not at hand, a piece of fine linen may be torn into small rags, and applied in the same manner. In very large hæmorrhages the lint or rags should be first dipped in some styptic liquor, as alcohol, or oil of turpentine; or sprinkled with some styptic powder. 2. To agglutinate or heal wounds; to which end lint is very serviceable, if spread with some digestive ointment, balsam, or vulnerary liquor. 3. In drying up wounds and ulcers, and forwarding the formation of a cicatrix. 4. In keeping the lips of wounds at a proper distance, that they may not hastily unite before the bottom is well digested and healed. 5. They are highly necessary to preserve wounds from the injuries of the air. Surgeons of former ages formed compresses of sponge, wool, feathers, or cotton; linen being scarce: but lint is far preferable to all these, and is at present universally used.

LINTEL, *n. s.* *Fr. linteau.* The head piece of a door frame.

Take a bunch of hyssop, and dip it in the blood that is in the bason, and strike the lintel and the two side-posts.

Exod.

Smite the lintel that the posts may shake.

Amos ix. 1.

The Israelites' doors, whose lintels were besprinkled with blood, were passed over by the destroying angel.

Bp. Hall.

When you lay any timber or brick work, as lintels over windows, lay them in loam, which is a great preserver of timber.

Moxon.

Silver the lintels deep projecting o'er,

And gold the ringlets that command the door.

Pope's Odyssey.

LINTERNUM, or LITERNUM, in ancient geography, a city of Campania, situated at the mouth of the Clanius, of Liturnus, between Cumæ and Vulturum. It received a Roman colony at the same time with Puteoli and Vulturum; was improved and enlarged by Augustus; afterwards forfeited its right of colonyship, and became a prefecture. Hither Scipio Africanus the elder retired from the envy of his ungrateful countrymen; and here he died. No vestige of the place now remains.

LINTZ, the capital of Upper Austria, is situated at the confluence of the Danube and Traun. It is a bishop's see; has a hall in which the states meet; a wooden bridge over the Danube; and several manufactories. The houses are in general respectable, but roofed with shingle. The church of St. Ignatius is worth notice, and the remaining castle, for in 1800 one was de-

stroyed by fire. Here a lyceum, two public schools, a public library, an institution for the deaf and dumb, and a large theatre. The manufactures are of linen (in which 30,000 hands are said to be employed), looking-glasses, gunpowder, and bottles. The town has two good annual fairs, at Easter and the Assumption: the environs are very fertile and picturesque. It was burnt in 1542. It was taken by the French in 1741, but retaken by the Austrians in 1742. Lintz is forty-two miles E. S. E. of Passau, and ninety-four west of Vienne.

LINUM, flax; a genus of the pentagynia order, and pentandria class of plants: *cal.* pentaphyllous; petals five: *caps.* quinquevalved and decemlocular: *seeds*, solitary. There are thirty species.

1. *L. catharticum*, the purging flax, has leaves opposite and lanceolate; the stem bifurcated, and the corollæ acute. This plant is not above four or five inches high, and is found wild upon chalky hills, and in dry pleasure grounds. Its virtue is expressed in its title; an infusion in water or whey of a handful of the fresh leaves, or a drachm of them in substance when dried, may be used as a cathartic without inconvenience.

2. *L. perenne*, the perennial Siberian flax, has a fibrous perennial root, sending up several upright, strong, annual stalks, branching four or five feet high; garnished with small, narrow, spear-shaped, alternate leaves, of a dark-green color; and terminated by umbellate clusters of large blue flowers in June, succeeded by seeds in autumn. This species is raised from seed in a bed or border of common garden earth, in shallow drills six inches asunder; when the plants are two or three inches high, thin them to the same distance; and in autumn plant them out where they are wanted.

3. *L. usitatissimum*, the common annual flax, has a taper fibrous root; upright, slender, unbranched stalks, two feet and a half high; garnished with narrow, spear-shaped, alternate, gray-colored leaves; and the stalks divided into foot-stalks at top, terminated by small blue crenated flowers in June and July; succeeded by large round capsules of ten cells, containing each one seed. This species may justly be looked upon as one of the most valuable of the whole vegetable kingdom: as from the bark of its stalks is manufactured the lint or flax for making all sorts of linen cloth; from the rags of the linen is made paper; and from the seeds is expressed the linseed oil, so useful in painting and other trades. The seeds are an excellent emollient and anodyne; they are used externally in cataplasms, to assuage the pain of inflamed tumors; internally a slight infusion of them by way of tea, in coughs, is an excellent pectoral, and of great service in pleurisies, nephritic complaints, and suppressions of urine. For the cultivation, dressing, &c., of this species, see FLAX.

LINUS, in classical history, a native of Colchis, contemporary with Orpheus, and one of the most ancient poets and musicians of Greece. According to archbishop Usher, he flourished about 1280 B. C., and he is mentioned by

Eusebius among the poets who wrote before the time of Moses. Diodorus Siculus tells us, from Dionysius of Mitylene the historian, who was contemporary with Cicero, that Linus was the first among the Greeks who invented verses and music, as Cadmus first taught them letters. He likewise attributes to him an account of the exploits of the first Bacchus, and a treatise upon Greek mythology, written in Pelasgian characters, which were also those used by Orpheus, and by Pranopidas the preceptor of Homer. Diodorus says that he added the string lichanos to the Mercurian lyre, and ascribes to him the invention of rhyme and melody; which Suidas, who regards him as the most ancient of lyric poets, confirms. Mr. Marpurge tells us, that Linus invented cat-gut strings for the use of the lyre which, before his time was only strung with thongs of leather, or with different threads of flax strung together. He had several disciples of great fame; among whom were Hercules, Thamyris, and, some add, Orpheus. Hercules, says Diodorus, in learning from Linus to play upon the lyre, being extremely dull and obstinate, provoked his master to strike him; which so enraged him that instantly seizing the lyre of the musician, he beat out his brains with his own instrument.

L'ION, *n. s.* } Fr. *lion*; Span. *leon*; Ital.
L'IONESS. } *leone, liona*; Lat. *leo*. A species of FELIS. See below.

So a *lions* of the lynage of iuda, the roote of dauid, hath overcomen to opene the book, and to undo the sevene seels of it. *Wiclif. Apoc. 5.*

The *lion* did tear in pieces enough for his whelps, and strangled for his *lionesses*, and filled his holes with prey, and his dens with ravin. *Nahum ii. 12.*

Be *lion* mettled; proud, and take no care
Who chafes, who frets, or where conspirers are;
Macbeth shall never vanquished be.

Shakspeare. Macbeth.

Under which bush's shade, a *lioness*
Lay couching head on ground, with catlike watch,
When that the sleeping man should stir.

Shakspeare.

King Richard's surname was Coeur-de-Lion, for his *lion-like* courage. *Camden's Remains.*

The sphinx, a famous monster in Egypt, had the face of a virgin, and the body of a *lion*.

Peacham on Drawing.

The furious *lioness*,
Forgetting young ones, through the fields doth roar.

May.

It hath ever been the fashion of God, to exercise his champions with some initiatory encounters: both Sampson and David must first fight with *lions*, then with Philistines; and he, whose type they bore, meets with that roaring *lion* of the wilderness, in the very threshold of his public charge. *Bp. Hall.*

The *lion* for the honours of his skin,
The squeezing crab, and stinging scorpion shine
For aiding heaven, when giants dared to brave
The threatened stars.

Creech's Manilius.

They rejoice

Each with their kind, *lion* with *lioness*;
So fitly them in pairs thou hast combined. *Milton.*

The greedy *lioness* the wolf pursues,
The wolf the kid, the wanton kid the browse.

Dryden.

See *lion-hearted* Richard,
Proudly valiant, like a torrent swelled
With wintry tempests, that disdain all mounds,

Breaking away impetuous, and involves
Within its sweep trees, houses, men, he pressed,
Amidst the thickest battle. *Phillips.*

If we may believe Pliny, *lions* do, in a very severe manner, punish the adulteries of the *lioness*.

Ayliffe.

LION, in zoology. See FELIS. The lion is frequently hunted for the sake of the flesh, which, though possessing a strong and disagreeable flavor, is eaten by the negroes, and also for the skin. In the day time, and on the open plain, from ten to sixteen dogs will easily overcome one of the largest lions. Nor is there any necessity that the dogs with which the lion is hunted should be trained up for the sport: the common farmhouse dogs will serve. As the lion is less swift than the dogs, the latter easily approach him, when, with sullen magnanimity, the lion turns round, and waits for the attack, shaking his mane, and roaring with a short and sharp tone. The hounds then surround him, and, all rushing upon him at once, are able, by their united efforts, to subdue, or tear him in pieces; he has seldom time to give more than two or three slight strokes with his paws, each of which, however, is attended with the death of one of his assailants.

The lion is sometimes hunted by parties of horsemen, in which case the horses should be trained to the purpose, or at least accustomed to the pursuit of beasts of prey, and the perils attendant on their chase; and it is only on the plains that the hunters ever venture to go out on horseback in this chase. If the lion remains in the jungle, or on a rising ground, they endeavour to tease him with the dogs till he comes into the plain. If the lion sees the hunters at a great distance, he flies from them with all possible speed; but, if they chance to discover him at a small distance only from them, he retires with sullen dignity, and at a slow pace, as though he were above showing any symptom of apprehension. If pursued, he soon slackens his pace, and at length only slides slowly off, step by step, at the same time watching his pursuers obliquely, till he finally makes a full pause, and, turning round upon them, shakes his mane, roars, and appears ready to seize upon them, and tear them in pieces. The foremost huntsman, or he who has the best mark at that part of the lion's body nearest his heart or lungs, is now the first to jump off his horse, and, securing the bridle by putting it round his arm, discharges his piece; then, in an instant recovering his seat, rides obliquely athwart his companions; and, giving his horse the reins, depends entirely on the speed and fear of the latter to convey him beyond the reach of the lion, should he have only wounded him. A fair opportunity now presents itself for some one of the other hunters to jump off his horse immediately, as he may then discharge his piece with effect, and save his companion. If this shot should miss likewise, a third sportsman rides after the lion, which is in pursuit of the first or second, and, springing off his horse, fires his piece as soon as he arrives within a proper distance. In the event of the lion turning again and attacking this pursuer, the other hunters return to his rescue with their pieces ready

charged, having loaded them while flying. No instance, it is said, has ever been known of any misfortune happening the hunters in chasing the lion on horseback. The remote parts of Africa are most exposed to the ravages of wild beasts, and the colonists in those districts, from the habit of hunting them, become excellent marksmen.

Mr. Wombwell's late attempt to bring a certain number of trained dogs upon one or two lions, we consider, on the whole, not worthy of detail in a work of science. It terminated only in the partial worrying of the lions selected, and established no new facts with regard to their habits, or natural history.

The LION MOUNTAIN of the Cape of Good Hope, Africa, rises immediately behind Cape Town. The summit is a mass of stone, much resembling from some points of view the dome of St. Paul's. It is 2160 feet in height, and is surmounted by a single post. It is properly part of the Table Mountain.

LIONCELLES, in heraldry, a term used for several lions borne in the same coat of arms.

LIOTARD, an eminent painter, born at Geneva, in 1702, and by his father designed for a merchant; but his genius inclined him to painting. He went to Paris in 1725, and in 1738 accompanied the marquis de Puisieux to Rome, where he was taken notice of by lords Sandwich and Duncannon, who engaged him to go with them to Constantinople. There he became acquainted with lord Edgecombe, and Sir Everard Fawkener, who brought him to England, where he staid two years. In his journey to the Levant he adopted the eastern habit, and wore it in Britain with a very long beard, whence he was called the Turk. After his return to the continent he married a young wife, and sacrificed his beard to Hymen. He came again to England in 1772, and brought a collection of pictures of different masters, which he sold by auction, and some pieces of glass painted by himself, with surprising effect of light and shade, but mere curiosities, as it was necessary to darken the room before they could be seen to advantage. He engraved some Turkish portraits, one of the empress queen and the eldest arch-duchess in Turkish habits, and the heads of the emperor and empress. He painted admirably well in miniature, and finely in enamel, though he seldom practised it. But he is best known by his works in crayons. His likenesses were as exact as possible, and too like to please those who sat to him: thus he had great business the first year, and very little the second. Devoid of imagination, and one would think of memory, he could render nothing but what he saw before his eyes. Freckles, marks of the small-pox, every thing found its place; not so much from fidelity, as because he could not conceive the absence of any thing that appeared to him. Truth prevailed in all his works, grace in few or none.

LIP, *n.s. & v. a.* } Sax. *lippe*; Fr. *lippe*;
 LIP-LABOR, *n. s.* } Teut. Belg. and Swed. *lip*;
 LIP-WISDOM. } Lat. *labia*. The edge or
 outer part of the mouth; hence the edges of a
 wound or any aperture: to lip is to hiss: lip-
 labor is well defined below by bishop Taylor:
 lip-wisdom, verbiage.

By hym offre we a sacrifice of heriynge evermore
 to god, that is to seie, the fruyt of *lippes* know-
 lechuge to his name. *Wiclif. Ebreus xiii.*

No falsehood shall defile my *lips* with lies
 Or with a veil of truth disguise. *Sandys on Job.*

Then in the midst a tearing groan did break
 The name of Antony: it was divided
 Between her heart and *lips*. *Shakspeare.*

Those happiest smiles
 That played on her ripe *lip*, seemed not to know
 What guests were in her eyes. *Id.*

O! 'tis the fiend's arch mock,
 To *lip* a wanton and suppose her chaste. *Id.*
 A letter for me! It gives me an estate of seven
 years health; in which time I will make a *lip* at the
 physician. *Id.*

And if some have fetched new noses, and *lips*, and
 ears from Italy, by the help of Tagliacotius and his
 scholars, never any brought a new tongue from
 thence. *Hp. Hall.*

Methinks to kiss ladies' hands after their *lips*, as
 some do, is like little boys, who, after they eat the
 apple, fall to the paring, out of love they have to
 the apple. *Selden.*

Fasting, when prayer is not directed to its own
 purposes, is but *lip-labour*. *Taylor's Rule of Living.*

I find that all is but *lip-wisdom*, which wants expe-
 rience; I now, woe is me, do try what love can do.
Sidney.

In many places is a ridge of mountains some dis-
 tance from the sea, and a plain from their roots to
 the shore; which plain was formerly covered by the
 sea, which bounded against those hills as its first
 ramparts, or as the ledges or *lips* of its vessel.
Burnet.

In wounds, the *lips* sink and are flaccid; a gleet
 followeth, and the flesh within withers. *Wiseman.*
 Her *lips* blush deeper sweets. *Thomson's Spring.*

Oh that those *lips* had language! life has passed
 With me but roughly since I heard thee last.
 Those *lips* are thine—thy own sweet smiles I see,
 The same that oft in childhood solaced me.
Cowper.

Or touch the shrill reed, as they trip,
 With finger light and ruby *lip*. *Darwin.*

LIPARA, in ancient geography, the principal
 of the islands called *Æolizæ*, situated between
 Sicily and Italy, with a cognominal town, so
 powerful as to have a fleet, and other islands in
 subjection to it. Diodorus Siculus says, it was
 famous for excellent harbours and medicinal
 waters; and that it suddenly emerged from the
 sea about the time of Hannibal's death. The
 name is Punic, according to Bochart; and given
 it, because, being a volcano, it shone in the
 night. It is now called Lipari, and gives name
 to nine others in its neighbourhood.

LIPARI ISLES.—The Lipari islands, twelve
 in number, are situated at the south-east ex-
 tremity of the Tuscan Sea, off the north coast of
 Sicily. They received from the ancients the
 names of *Æolian* and *Vulcanian* islands, it being
 supposed that *Æolus* kept the winds imprisoned
 in their caverns, and that they contained the
 forges of Vulcan. The first volcanic eruption in
 the Lipari islands, recorded in history, is that
 which Callius mentions in his History of the
 Wars in Sicily. Callius was contemporary with
 Agathocles. That eruption continued without in-
 terval for several days and nights; and threw out
 great stones, which fell above a mile distant. The
 sea boiled all round the island of Lipari, we are

told. During the consulship of Æmilius Lepidus and L. Aurelius Orestes, A. A. C. 126, these islands were affected with a dreadful earthquake. The burning of Ætna was the first cause of it. 'Around Lipari and the adjacent islands the air was all on fire.' Vegetables were burnt up, animals died, and fusible bodies, such as wax and resin, became liquid. If the inhabitants of Lipari, from whom Callius received these facts, and the writers who have handed them down to us, have not exaggerated matters, the sea boiled around the island; the earth became so hot as to burn the cables by which vessels were fixed to the shore, and consumed the planks, the oars, and even the small boats. Pliny speaks of a similar event, which happened thirty or forty years afterwards, in the time of the war of the allied states of Italy against Rome. One of the Æolian islands, says he, was on fire as well as the sea; and that prodigy continued to appear till the senate appeased by a deputation the wrath of the gods. From the time of that war, which happened A. A. C. 86, till A. D. 144, we have no account of an eruption of these volcanoes; and from that period again till 1444, we hear of no explosion from them for 1300 years. But at that time both Sicily and these isles were agitated by dreadful shocks of earthquakes; the Volcano isle poured forth streams of flame and smoke, which rose to an amazing height. After that it discharged enormous stones, which fell above six miles distant. In 1550 the ashes and stones discharged from its crater filled up the strait between Volcano and Volcanello. In 1739 there was a sixth eruption. The burstings of the volcanic fire were attended with a noise so dreadful, that it was heard as far as Melazzo in Sicily. In 1775 the whole island was shaken; subterraneous thunder was heard, and considerable streams of flame, with smoke, stones, and vitreous lava, issued from the crater. Lipari were covered over with ashes, and part of these was conveyed by the winds all the way into Sicily. In April 1780 there issued a new explosion from Volcano; the smoke was thick, the shocks constant, and the subterraneous noise very frequent. In 1783 the isles of Lipari were agitated anew by that fatal earthquake which ravaged Calabria, and part of Sicily, on the 5th of February. They are almost entirely composed of volcanised substances, and afford sulphur, nitre, alum, cinnabar, pumice stone, &c., in abundance. We enumerate the chief of them:—

1. The largest, most fertile, and best inhabited is Lipari (Lipara), five leagues in circuit; more than half of its surface is cultivated, the remainder being either covered with wood, or entirely barren. The vegetable productions are rye, nearly enough for its consumption, some cotton, and olives; but its chief riches are its vines, which give wines of various qualities, particularly a kind of malmsey. It also exports a considerable quantity of raisins. The prickly pear is indigenous in this island. It has many hot springs. On the south is a little town at the foot of a hill, rising abruptly from the sea; the houses, except those of the bishop and governor, are mean. It is defended by a castle on a naked

rock of lava, rising perpendicularly from the water. Close to its west side is a rock, called Pietro del Bagno.

2. Salini (Didime), is nearly as large as Lipari, and consists of two mountains united at the base. It has its name from the salt, which is formed by the sun in a lagoon, communicating with the sea. On the north side is a fine spring of water, gushing from a rock close to the shore. Off its south end are three rocks, called the Three Stones.

3. Volcano (Hieri and Therasia), is four leagues in circuit, and has the shape of a cone with the top broken off. It continually throws out volumes of smoke. It is uninhabited, and only occasionally visited by the other islanders, to cut brush-wood for fuel, which grows in the crater of an old volcano. Volcanello, anciently a distinct island, has been joined to Volcano by a narrow neck, formed by an eruption. On each side of the neck is a good road.

4. Stromboli (Strongyle) is one immense volcano, whose continual eruptions of flame have gained it the name of the Light-house of the Mediterranean. It is three leagues in circuit, and very barren, having only a few poor vineyards on the north side. There is no anchorage round it, and the small vessels that belong to or visit it are hauled on the beach. The number of inhabitants is about 1000, who live in scattered huts on the shore, and are principally employed in fishing for congers, which are abundant round the island. They chiefly depend on the rains for fresh water, the island having but two small springs. A mile from the north end is a great rock called the Stone of Stromboli, one-fourth of a mile in circuit, and sixty feet high.

5. Panaria (Ilycesia) is nearly three leagues in circuit, moderately elevated, and composed of volcanised granite, generally barren, but producing some olives. North of it are several lesser volcanic islands and rocks, viz. the Formiculas, or Ants, a group of rocks nearly level with the water, Dattolo, Lisca Nera (Black Lisca), Lisca Bianca (White Lisca), and Bottero, Tilanavi, and Panarelli.

6. Basiluzzo is only two miles in circuit, elevated but a few feet above the sea, and inhabited by half a dozen persons, who cultivate a small spot near its centre. It abounds with rabbits, and on the south-east coast is a little cove for boats.

7. Felicudi, or Filicuri (PhenICODES), is composed of a group of hills, and has about 600 inhabitants in insulated dwellings. It has a natural cavern, called the Grotto of the Sea-Ox, in which is a kind of apartment 200 feet long, 120 broad, and sixty-five high. On the south and north-east sides of the island are coves for small vessels, according to the winds.

8. Alicudi, or Alicuri (Ericades), the westernmost island, has 400 inhabitants, who reside on the east and south-east sides, all the rest of the island being composed of volcanic barren precipices. This island, as well as Felicudi, produces some wine, barley, and rye, together estimated at 7000 Neapolitan crowns a year. Both islands are destitute of springs, and the inhabitants consequently depend on the rain-water preserved in their cisterns, which, in dry seasons,

is sometimes exhausted. Each island has four or six barks belonging to it; those of Alicudi are hauled on shore, there being no anchorage round it.

LIPOTH'YMOUS, *adj.* } Greek λειπω, to
LIPOTH'YMY, *n. s.* } faint or fail, and
θυμος, the animal spirit. Swooning; fainting;
fainting-fit.

If the patient be surprised with a *lipothymous* languor, and great oppression about the stomach and hypochonders, expect no relief from cordials.

Harvey on the Plague.

The senators falling into a *lipothymy*, or deep swooning, make up this pageantry of death with a representing of it unto life.

Taylor.

In *lipothymy* or swoonings, he used the frication of his finger with saffron and gold.

Browne.

LIPPE, or **LIPPE DETMOLD**, a principality of Westphalia, adjoining Hanover and the Prussian states: the bailiwick of Lipperode is a detached part round the town of Lippstadt. The area of the principality has been computed at 434 square miles: the population at 73,000, who are mostly Calvinists. The Emma, Werra, Hamme, and Bever traverse its hilly surface, which is also diversified by large forests of oak and beech timber. Its chief manufactures are wool and cattle, which with its linen and yarn are largely exported by the Weser. It is divided into eleven bailiwicks.

LIPPERT (Philip Daniel), an ingenious artist in glass was born of poor parents, at Dresden, in 1703. Having studied drawing, and made himself acquainted with the Latin and Greek languages, he was appointed drawing-master to the pages of the elector, and his situation afforded him facilities for forming a collection of antiquities. He contrived a method of taking impressions in glass of ancient gems, a number of which he offered for sale, and of which he published a catalogue with the following title: *Genusmarum anaglyphicarum et diaglyphicarum, ex præcipuis Europæ Musæis selectarum ectypa M. ex vitro obsidiano et massa quodam, studio P. D. Lippert fusa et afficta, Dresd. 4to.* He published an account of a second collection in 1756, and of a third in 1763; besides other works. He died in 1785.

LIPPI (Lorenzo, or Lawrence), a painter of history and portraits, was born in 1606, and learned the principles of painting from Matthew Roselli. He had an exquisite genius for music and poetry, as well as for painting; and, in the latter, his proficiency was so great, that some of his compositions were taken for those of Roselli. He afterwards adopted the manner of Santi di Titi, who has more of simple nature and truth in his compositions than any other artist of that time. At Florence Lippi painted many designs for the chapels and convents, by which he enlarged his reputation; and produced at the court of Inspruck a great number of portraits of the nobility, which were deservedly admired. His works are held in the highest esteem for the graceful airs of their heads, the correctness of his outline, and the elegant disposition of the figures. He died in 1664.

LIPPIDUDE, *n. s.* Fr. *lippitude*; Lat. *lippitudo*. Blearedness of eyes.

Diseases that are infectious, are such as are in the spirits and not so much in the humours, and therefore pass easily from body to body: such are pestilences and *lippitudes*.

Bacon.

I flatter myself I shall soon get rid of this infirmity; nay, that I shall ere long be in the way of becoming a great man. For have I not head-aches, like Pope? vertigo, like Swift? grey hairs, like Homer? Do I not wear large shoes (for fear of corns), like Virgil? and sometimes complain of sore eyes (though not of *lippitude*), like Horace? *Beattie.*

LIPSIUS (Justus), a learned critic, born at Isch, a village near Brussels, in 1547. After having distinguished himself in literature, he became secretary to cardinal de Granveilan at Rome, where the best libraries were open to him; and he collated the MSS. of ancient authors. He lived twelve years at Leyden; during which he composed and published what he esteemed his best works; but settled at Louvain, where he taught polite literature with great reputation. He was remarkable for unsteadiness in religion, fluctuating often between the Protestants and Papists; but he became finally a bigotted Catholic. He died at Louvain in 1606; and his works are collected in 6 vols. folio.

LIPTAU, a mountainous and bleak palatinate of Hungary, traversed by the Carpathian Mountains: it has gold, silver, and iron mines, some precious stones; and is abundant in antimony. Its forests are also considerable; but there is much good pasturage, and the flocks of sheep are large. Population 64,000, about half of whom are Protestants. Szent-Miklos is the chief town.

LIQUABLE, *adj.*

LIQUA'TION, *n. s.*

LI'QUATE, *v. n.*

LIQUEFACTION, *n. s.*

LIQUEFI'ABLE, *adj.*

LIQ'UEFY, *v. a.*

LIQUES'CENCY, *n. s.*

LIQUES'CENT, *adj.*

LIQ'UID, *adj. & n. s.*

LIQ'UIDATE, *v. a.*

LIQUID'ITY, *n. s.*

LIQ'UIDNESS, *n. s.*

LIQ'UOR, *n. s. & v. a.*

All these words seem to have their origin in the Lat. *liqueo* (*à lix*, water,) to melt or dissolve. Cognate words are, in Fr. *liquefaction*; *liquefier*; *liqueur*; *liqueur*; Ital. *Span.* and *Port.* *liquido*; *Span.* and *Port.* *licor*; Ital. *liquore*. Liquidable and lique-

fiable mean, that may be melted or made into liquid: liquation, the act or capacity of being made so: to lique and to liquefy, to melt, sink into liquidity: liquefaction, the act of melting or making liquid, or state of being melted: to liquefy is, to dissolve; melt; make liquid: liquescency, aptness or tendency to melt: liquescent, melting: liquid, fluid; not solid; dissolved; hence it means invalid, in law; soft; clear; gentle; flowing: a liquid and a liquor, as substantives, mean a fluid; a body in a liquid state; and the latter has a particular application to impregnated or strong fluids or drinks: to liquor is to drink or moisten with liquid: to liquidate is synonymous with to liquefy, but is more generally applied in the figurative sense of lessening or paying off debts: liquidity and liquidness are subtilty; thinness; quality of being liquid. These words seem to have been multiplied in our language from the different cognate sources specified, until many of them have become redundant.

Thou shalt not delay to offer the first of thy ripe fruits, and of thy *liquors*. *Ezod. xxii. 29.*

Neither shall he drink any *liquor* of grapes.

Numbers vi. 3.

Heat dissolveth and melteth bodies that keep in their spirits, as in divers *liquefactions*; and so doth time in honey, which by age waxeth more liquid.

Bacon's Natural History.

There are three causes of fixation, the even spreading of the spirits and tangible parts, the closeness of the tangible parts, and the jejuneness or extreme comminution of spirits; the two first may be joined with a nature *liquefiable*, the last not.

Id.

That degree of heat which is in lime and ashes, being a smothering heat, is the most proper, for it doth neither *liquefy* nor rarefy; and that is true maturation.

Id.

Cart wheels squeak not when they are *liquored*.

Bacon.

Her breast, the sug'red nest

Of her delicious soul, that there does lie,

Bathing in streams of *liquid* melody. *Crashaw.*

Return your superfluous *liquors* into tears of repentance, which only can quench that fire.

Ep. Hall.

Gently rolls the *liquid* glass.

Dr. Daniel.

Nor envied them the grape

Whose heads that turbulent *liquor* fills with fumes.

Milton.

The spirits, for their *liquidity*, are more incapable than the fluid medium, which is the conveyor of sounds, to persevere in the continued repetition of vocal airs.

Glanville.

The common opinion hath been, that chrystal is nothing but ice and snow concreted, and, by duration of time, congealed beyond *liquation*.

Broune's Vulgar Errors.

Oil of anniseeds, in a cool place, thickened into the consistence of white butter, which, with the least heat, resumed its former *liquidness*.

Boyle.

The many *liquid* consonants give a pleasing sound to the words, though they are all of one syllable.

Dryden's Æneid.

Be it thy choice, when summer heats annoy,

To sit beneath the leafy canopy,

Quaffing rich *liquids*.

Phillips.

The burning of the earth will be a true *liquefaction* or dissolution of it, as to the exterior region.

Burnet.

Sin taken into the soul is like a *liquor* poured into a vessel; so much of it as it fills, it also seasons.

South's Sermons.

The blood of St. Januarius *liquefied* at the approach of the saint's head.

Addison on Italy.

If a creditor should appeal to hinder the burial of his debtor's corpse, his appeal ought not to be received, since the business of burial requires a quick dispatch, though the debt be entirely *liquid*.

Ayliffe's Pavegon.

Why does she wake the correspondent moon,

And fill her willing lamp with *liquid* light.

Prior.

If the salts be not drawn forth before the clay is baked, they are apt to *liquates*.

Woodward on Fossils.

Let Carolina smooth the tuneful lay,

Lull with Amelia's *liquid* name the nine,

And sweetly flow through all the royal line.

Pope's Horace.

When amatory poets sing their loves

In *liquid* lines melliflously bland,

And praise their rhymes as Venus yokes her doves,

Their little think what mischief is in hand.

Byron.

In this state, being exposed in an earthen vessel to the naked fire, it readily becomes soft, but did not *liquefy* without considerable difficulty, rather frying as a piece of soap would do, and disengaging at the same time ammoniacal vapours.

Dr. A. Rees.

LIQUEFACTION is an operation by which a solid body is reduced into a liquid; or the action of fire or heat on fat and other fusible bodies, which puts their parts into a mutual intestine motion. The liquefaction of wax, &c., is performed by a moderate heat; that of sal tartari, by the mere moisture of the air. All salts liquefy; sand, mixed with alkalies, becomes liquefied by a reverberatory fire, in the making of glass. In speaking of metals, instead of liquefaction, we ordinarily use the word fusion.

LIQUIDAMBART, sweet gum tree, in botany, a genus of the polyandria order, and monœcia class of plants. Male, *CAL.* common, triphyllous: *COR.* none, but numerous filaments. Female, *CAL.* collected into a spherical form, and tetraphyllous: *COR.* none, but seven styles; and many bivalved and monospermous CAPSULES collected into a sphere. There are only two species, both deciduous, viz.—

1. *L. peregrinum*, Canada liquidambar, or spleenwort-leaved gale, is a native of Canada and Pennsylvania. The young branches are slender, tough, and hardy. The leaves are oblong, of a deep green color, hairy underneath, and have indentures on their edges alternately very deep. The flowers come out from the sides of the branches, and they are succeeded by small roundish fruit, which seldom ripens in England.

2. *L. styraciflua*, the Virginia or maple-leaved liquidambar; a native of the rich moist parts of Virginia and Mexico. It shoots in a regular manner to thirty or forty feet high, having its young twigs covered with a smooth, light-brown bark, while those of the older are of a darker color. The leaves are of a lucid green, and grow irregularly on the young branches, on long foot-stalks: they resemble those of the common maple in figure; the lobes are all serrated; and from the base of the leaf a strong mid-rib runs to the extremity of each lobe that belongs to it. The flowers are of a kind of saffron color: they are produced at the ends of the branches in the beginning of April, sometimes sooner; and are succeeded by large round brown fruit, which looks singular. Both species may be propagated either by seeds or layers; but the first method is the best. 1. The seeds arrive from America in spring. A fine bed, in a warm well-sheltered place, should be prepared. If the soil be sandy, it should be wholly taken out nearly a foot deep, and the vacancy filled up with earth taken up a year before from a fresh pasture with the sward, well rotted and mixed by being often turned, and afterwards mixed with a sixth part of drift or sea-sand. In a dry day, early in March, let the seeds be sown, and the finest of this compost riddled over them a quarter of an inch deep. When the hot weather in spring comes on, the beds should be shaded and watered often, but in very small quantities. The plants being come up, shading should still be afforded them in summer, and a watering every other night; which will promote their growth, and render them

stronger by the autumn. In autumn the beds should be hooped, to be covered with mats in the severe frosts. These mats, however, should always be taken off in open weather. This is all the management they require during the first winter. The succeeding summer they only require weeding; though, if it should prove a dry one, they will need a little water now and then. By autumn they will be strong enough to resist the cold of the following winter, without the trouble of matting, if the situation is well sheltered; if not, it will be proper to have the hoops prepared, and the mats ready, against the northern frosts, which would endanger at least their losing their tops. After this, weeding only will be wanted; and in the spring following, that is, three years from their first appearance, they should be taken up, and planted in the nursery a foot asunder, and two feet distant in the rows. Hoeing the weeds in the rows in summer, and digging them in the winter, is all the trouble they will afterwards require until they are finally planted out. 2. They are easily increased by layers. The operation must be performed in autumn on the young summer's shoots; and the best way is by slitting them at a joint, as is practised for carnations. In a strong dry soil they will be often two years or more before they take root; though, in a fine light soil, they will be found to take freely enough. The leaves emit their odoriferous particles in such plenty as to perfume the circumambient air; nay, the whole tree exudes such a fragrant transparent resin, as to have given occasion to its being taken for the sweet storax. These trees, therefore, are very proper to be planted singly in large opens, that they may amply display their fine pyramidal growth, or to be set in places near seats, pavilions, &c. The resin was formerly of great use as a perfume.

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LIRIA, an old town of Valencia, Spain, (the Carthaginian, Edera, and Roman Edeta), stands in a valley between two small hills. Its principal church is worth notice; it has two others; two convents, and a flourishing brandy distillery. Roman antiquities are frequently found. Twenty miles N. N. W. of Valencia.

LIRIODENDRON, the tulip-tree, in botany, a genus of the polygynia order, and polyandria class of plants, natural order fifty-second, coadunate: CAL. triphyllous; there are nine petals: SEEDS imbricated in such a manner as to form a cone. Species four, the principal one is,

L. tulipifera, a deciduous tree, native of America.

It rises with a large upright trunk, branching forty or fifty feet high. The trunk, which often attains to a circumference of thirty feet, is covered with a gray bark. The branches, which are not very numerous, of the two-years-old wood, are smooth and brown; while the bark of the summer's shoots is smoother and shining, and of a bluish color. They are very pithy. Their young wood is green, and when broken emits a strong scent. The leaves grow irregularly on the branches, on long foot-stalks. They are of a particular structure, being composed of three lobes, the middlemost of which is shortened in such a manner that it appears as if it had been cut off and hollowed at the middle: the other

two are rounded off. They are about four or five inches long, and as many broad. They are of two colors; their upper surface is smooth, and of a stronger green than the lower. They fall off pretty early in autumn; and the buds for the next year's shoots soon after begin to swell and become dilated, insomuch that, by the end of December, those at the ends of the branches will become nearly an inch long and half an inch broad. The outward laminae of these leaf-buds are of an oval figure, have several longitudinal veins, and are of a bluish color. The flowers are produced with us in July at the ends of the branches: they somewhat resemble the tulip, which occasions its being called the tulip-tree. The number of petals of which each is composed, like those of the tulip, is six; and these are spotted with green, red, white, and yellow, thereby making a beautiful mixture. The flowers are succeeded by large cones, which never ripen in England. The propagation is very easy if the seeds are good; for by those which we receive from abroad, they are to be propagated. No particular compost need be sought for; neither is the trouble of pots, boxes, hot-beds, &c., required. They grow exceedingly well in beds of common garden mould, and the plants will be hardier and better than those raised with more care. Therefore, as soon as the seeds arrive, which is generally in February, and a few dry days have happened, so that the mould will work freely, sow the seeds, covering them three quarters of an inch deep; and observe to lay them lengthwise, otherwise, by being very long, one part, perhaps that of the embryo plant, may be out of the ground soon, and the seed be lost. This being done, let the beds be hooped; and as soon as the hot weather and drying winds come on, in spring, let them be covered from ten A. M. till sunset. If little rain happens, they must be duly watered every other day; and by the end of May the plants will come up. Shade and watering in the hottest summer must be afforded them, and they will afterwards give very little trouble. The next winter they will want no other care than, at the approach of it, sticking some furze bushes round the bed, to break the keen edge of the black frosts, for it is found that the seedlings of this sort are very hardy, and seldom suffer by any weather. After they have been two years in the seed-bed, they should be taken up and planted in the nursery, a foot asunder, and two feet distant in the rows. After this the usual nursery care of hoeing the weeds, and digging between the rows in the winter, will suffice till they are taken up for planting out. The tulip-tree, in those parts of America where it grows common, affords excellent timber for many uses; particularly, the trunk is frequently hollowed, and made into a canoe sufficient to carry many people; and for this purpose no tree is thought more proper by the inhabitants of those parts. It may be stationed among trees of forty feet growth.

LIRIS, in ancient geography, a river of Italy in Campania, which it separated from Latium and falling into the Mediterranean; now called Garigliano.

LIRON (John), a learned Benedictine, who published two curious works: 1. *Bibliothèque des Auteurs Chartrains*. 2. *Les Aménités de la Critique*. He died in 1749.

LIS, or Lys (John Vander), a painter of history, landscapes, and conversations, born at Oldenburgh in 1570. He went to Haarlem to study under Henry Goltzius; and, as he was endowed with great natural talents, soon distinguished himself in that school. He adhered to the same style till he went to Italy; where, having visited Venice and Rome, he studied the works of Titian, Tintoretto, Paul Veronese, and Dominic Petti, so effectually, that he altered his manner entirely. He soon received marks of public approbation; and his compositions became universally admired. His subjects were sacred histories, or rural sports, marriages, balls, and villagers dancing, dressed in Venetian habits; all which he painted in a small as well as a large size. An excellent picture of his is Adam and Eve lamenting the death of Abel. His paintings are rare. He died in 1629.

LIS (John Vander), of Breda, an historical painter, born at Breda about 1601. He became a disciple of Cornelius Polenburg, whose manner he imitated with extraordinary exactness. His portrait painted by himself, formerly in the possession of Horace Walpole, esq., is described as being worked up equal to the smoothness of enamel.

LISBON, the ancient Olisippa, and Felicitas Julia, seems to have acquired the latter name from the beauty and salubrity of its situation and climate; for it is found to have 200 fine, and but eighty rainy days in the course of the year. The capital, and one of the most important ports of Portugal, it is situated on seven hills, in the province of Estremadura (Extrema Durii), and rises from the north bank of the Tagus, three leagues within the bar. Above Lisbon, the Tagus is navigable sixteen leagues, and might easily be made so ten leagues farther, to Alcantara, on the frontiers of Spain. As it has most to dread an attack by shipping, the banks of the river are lined with forts on both sides. The first met with, on entering the harbour, is Fort Lorenzo, or the Tower of Bugio, on a sand-bank, which serves as a prison for convicts. Fort St. Julian is on a rock on the north shore of the entrance, and Fort St. Antonio on the south. The quays along the river are described as surpassing any thing of the kind in London or Paris; and the coup d'œil of the city from a distant point of the river, especially in crossing it from the south-east, is most imposing and majestic. Its general form is that of a half moon, four miles from point to point, and about a mile and a quarter broad.

It is surrounded by old and useless walls, flanked with towers, and may be divided into the Old and New town, the latter being that part rebuilt since the earthquake of 1755. This part of the city is neat and regular, and its streets have sewers and footways on each side. In the Old, part of the streets are so narrow, that the sun is said never to shine on the pavement, except when passing the meridian. In the centre

of the city is a small citadel. It has three suburbs, Junqueira, Alcantara, and Campo Grande, to which may be added Belem, a pleasant town immediately adjoining the city on the west, which has long been the residence of the court.

The public buildings of this metropolis are numerous, but not distinguished as specimens of architecture. In all there are forty parish churches, ninety-nine chapels, seventy-five convents or monasteries, and several distinct hospitals: here are also thirteen squares, great and small. The best edifices are the patriarchal church, situated on an eminence at the north-east of the city; the royal monastery of Belem, built in 1500; the church of St. Roque, formerly belonging to the Jesuits; and the New Church, the largest structure erected since the earthquake of 1755. The royal hospital, and the palace of the inquisition, are also large and elegant buildings. Near the latter is the public walk, an oblong garden laid out in alleys; and farther to the north is one of the two theatres of Lisbon, with a square for bull fights. The greatest architectural curiosity, however, is the aqueduct to the north of the city, which, though not half a mile in length, passes in one part through a tunnel, in another across a defile. It is partly Roman, partly a Gothic work; the principal arch is of the width of 107 feet, and considered one of the finest specimens of the Gothic style in Europe. In the great earthquake the body of it withstood the shock unhurt, but the key-stone sunk several inches. The Lisbon academy of sciences was founded in 1779 by the duke of Lafões, and has an observatory and a good mathematical library. The geographical academy was founded in 1799; the college of nobles in 1761; the royal marine academy in 1779; the academia real das Guardas Marinhas, in 1782; and the royal academy of fortification in 1790. Except the geographical academy, these are all institutions for education, and have sometimes had professors of merit. There are various public libraries, which contain all the standard Spanish and Portuguese works; but are deficient, as indeed is the whole city, in foreign books. The collections of natural history, laboratories, observatories, and botanical gardens, mentioned in the State Calendar, are of little importance. The only newspaper of the country is the Lisbon Gazette; and the insipid *Almoirene de Petas* was very lately the only literary journal. The royal or St. Joseph's hospital is an excellent institution, in which the sick are carefully attended, irrespective of their nation or religion. The number of patients admitted in a year frequently amounts to 12,000 or 14,000. The founding hospital is also a noble charity.

Lisbon is one of the most commercial cities of Europe, having 200 mercantile houses, of which 150 are English, and its trade annually employs between 1000 and 1500 vessels. In 1790 there cleared out 967: viz. English 319; Portuguese 252; North American 75; and 321 of all other nations. In 1797 the numbers entered and cleared out were,

	Entered.	Sailed
English	533	466
Portuguese	300	309
Danes	218	229
Americans	154	161
Prussians	80	86
Hamburgers	43	43
Ragusans	22	23
Venetians	19	24
Bremeners	10	11
Genoese	9	13
Lubeck	9	10
Morocco	9	2
(Oldenburg	6	8
Neapolitans	4	3
Spaniards	3	4
Pappenburg	2	2
French	1	1
Imperial	1	1
Total 1423	1396	

This includes all the colonial and three-fourths of the foreign trade of the kingdom, which altogether is very backward in manufactures, both in the capital as well as in the provincial towns. Lisbon has, however, manufactures of gold, silver, and brass; silk, cotton, woollen, and linen; thread, stockings, and lace; leather, hats, soap, tobacco, and earthenware, on a small scale. To England the chief exports are the wines, known as Lisbon and Calcavella; lemons, oranges, and fruits; cork, wood, silk and wool. The principal imports from this country are woollens, calicoes, stockings, watches, trinkets, coals, hardware, copper, and lead. From Ireland, corn, flour, and salted provisions. To the north of Europe Lisbon exports wines, salt, fruits, and colonial produce; and receives as imports corn, hemp, flax, iron, timber, deal, stock-fish, pitch, tar, Russian and German linens. The exchange transactions are on a large scale.

The patriarch of Lisbon, generally a cardinal of the Roman consistory, takes precedence of all the ecclesiastics of Portugal, and is always first chaplain to the king. Ignorance and superstition pervade all classes of its inhabitants. Numbers are seen throughout the day kneeling and motionless before figures of the Virgin, or of our Saviour on the cross, hung against the walls, and furnished on festival days with lamps. The streets, though less dirty than formerly, are still offensive to English visitors. At night, however, they are tolerably lighted, and the police regulations are good, but ill executed: assassinations and robberies being frequently committed in lonely parts of the city. Even in the day, the appearance of Lisbon is lifeless and cheerless, the Portuguese having little of the activity of their forefathers in business or amusement.

The Moors seem to have given the name *Lisboa* or *Lisboa* to this city when they conquered it with the rest of Portugal in the year 716. In the subsequent wars between them and the Christians, it was alternately lost and won by each, and continued many ages a sea-port of consequence, but did not become the capital of the kingdom until the beginning of the sixteenth century, when king Emanuel first made it a

royal residence, and the central port for the expeditions to the East and West Indies.

It was unmolested by the demon of war from this period until the late French invasion of Portugal; but was partially shaken by the earthquake of 1531, and almost annihilated by that of 1755. See our article *EARTHQUAKE*. Ruins of its ravages are still visible. In 1807 the French army marched from Abrantes on this devoted capital, which afterwards became the scene of various important operations both of the British and French, until the latter abandoned it after the convention of Cintra. Mr. Southey's description of these events is so picturesque and interesting, that our readers, we are sure, will find it acceptable in this place.

The dismay and astonishment of the Lisbonians may well be conceived, when they learnt that the French were at Abrantes, and saw the court making ready for immediate flight. The hurry and disorder of Junot's march was not unknown; his artillery had been damaged, having been dragged by oxen and peasantry over mountainous roads; a great number of his horses had died upon the way over worked, and the men themselves had been marched so rapidly, and fed so ill, that a large proportion of them were more fit for the hospital than for active service. The greater part of the Portuguese army was near the capital, and, wretched as the state was to which it had fallen, neither the will nor the courage of the men was doubted. The English in the fleet, with a right English feeling, were longing to be let loose against the enemy: Sir Sidney offered to bring his ships abreast of the city, and there, seconded by the indignant populace, dispute every inch of ground with the invader: 'Surely,' he said, 'Lisbon is as defensible as Buenos Ayres!' Well might he thus feel and express himself who had defended Acre: and certain it is that Junot and all his foremost troops might have been put to the death which they had already merited at the hands of the Portuguese, if the prince had given the word. But such an act of vengeance, just as it would have been, would have been advantageous to Buonaparte, by giving him a colorable pretext for treating Portugal as a conquered country: this the prince knew; and it was in reliance upon his gentle and conscientious character that Junot advanced in a manner which would else have appeared like the rashness of a madman.

The Portuguese navy was ill equipped for sea; no care had been taken to keep it victualled, and it was now found that many of the water-casks were rotten, and new ones were to be made. The morning of the 27th had been fixed for the embarkation (of the royal family), and at an early hour numbers of both sexes and of all ages were assembled in the streets and upon the shore at Belem, where the wide space between the river and the fine Jeronymite convent was filled with carts and packages of every kind. From the restlessness and well-founded alarm of the people, it was feared that they would proceed to some excess of violence against those who were the objects of general suspicion. The crowd however was not yet very great when the prince appeared, both because of the distance

from Lisbon, and that the hour of embarkation was not known. He came from Ajuda, and the Spanish Infante D. Pedro in the carriage with him; the troops who were to be on duty at the spot had not yet arrived, and, when the prince alighted upon the quay, there was a pressure round him, so that, as he went down the steps to the water-edge, he was obliged to make way with his hand. He was pale and trembling, and his face was bathed in tears. The multitude forgot for a moment their own condition in commiseration for his; they wept also, and followed him, as the boat pushed off, with their blessings. There may have been some among the spectators who remembered that from this very spot Vasco de Gama had embarked for that discovery which opened the way to all their conquests in the east; and Cabral for that expedition which gave to Portugal an empire in the west, and prepared for her prince an asylum now when the mother country itself was lost.

‘In the course of the day the advanced guard (of the French) arrived in the immediate vicinity of the city, and Junot himself saw the ships with that prey on board in the hope of which he had advanced with such rapidity, conveying the family of Braganza beyond his power, and beyond that of his mighty master. The troops arrived without baggage, having only their knapsacks, and a half gourd slung from the girdle as a drinking-cup; their muskets were rusty, and many of them out of repair; the soldiers themselves mostly barefoot, fagged with their march, and almost fainting with fatigue and hunger. The very women of Lisbon might have knocked them on the head. Junot reached Sacavem between nine and ten at night. The next morning the royal guard of police went on to meet him at an early hour. Without halting in Lisbon, he hurried on to Belem, and, entering the battery of Bom-successo, satisfied himself by ocular demonstration that the Portuguese squadron was beyond his reach; he fired, however, upon those merchant-ships, which, not having been ready in time, were now endeavouring to escape. Very many were thus detained, for the prince’s order to spike the guns had only been partially obeyed, having been countermanded by the governors; and this was another of their acts for which the people could assign no adequate or excusable cause. Junot immediately sent a battalion to garrison Fort St. Juliens, and then returned to Lisbon, with hardly any other guard than some Portuguese troops whom he had met on the way and ordered to follow him; thus accompanied he paraded, as in triumph, through the principal streets. It was raining heavily, yet the streets were filled with a melancholy and wandering crowd. The shops were shut, the windows and verandas full of anxious spectators. The gestures of all those who saluted him as he passed, either for former acquaintance, or flattery, or fear, he returned with studied courtesy and stateliness. In this manner he proceeded to the house of Barao de Quintella, in the Rua d’Alegria, one of the most opulent of the Portuguese merchants. The palace of Bemposta had been prepared for him, and the Senado da Camera assigned for his household expenses a monthly contribution of 12,000 cru-

zados. He received the money, and compelled Quintella to be at the whole charge of his establishment.’

Our author’s description of the embarkation of the French, under Junot, is too long for insertion: but it forms an important record in illustration of the character of the French army at this period, and is closely connected with the history of this city. Speaking of the memorable convention, already alluded to, he says, ‘During the negotiation Lisbon was in a dreadful state. Those wretches who, to the reproach of Christian states and civilised society, are bred in the corruption of all great cities, took advantage of the temporary dissolution of government as they would have done of a conflagration or an earthquake. The soldiers of the police, being Portuguese, had almost all gone to join their countrymen in arms, and the French, while they went the rounds, suffered robberies to be committed in their hearing and in their sight, either not understanding the cries for help, or not choosing to interfere, now that their reign was at an end. They indeed themselves were in such danger that they soon gave over patrolling the streets, and fired upon those who approached their quarters in the night. In this manner several Portuguese were shot; the French venturing upon this, not so much in the confidence of their own strength, as in full reliance upon the interference of the English to protect them.

‘The French continued that system of public and private robbery for which they seemed to think the convention had granted them entire impunity. General Freire complained to Sir Hew Dalrymple that they were plundering the treasury, the museum, public libraries, arsenals, churches, and the houses and stores of individuals. The British commissioners for carrying the convention into effect, major-general Beresford and lord Proby, informed him, that except the military and naval stores there was no kind of public property which the French intended to relinquish; that they meant to carry off the valuables of the prince, the plunder of the churches, and much of the property of individuals; that they had packed up the royal library, and most of the articles of the museum: that during the negotiation they had taken a sum of about £22,000 from the Deposito Publico, which was in fact a robbery of individuals, that money being deposited there till litigations concerning it should be decided: and that even after the terms were signed they had actually demanded the money arising from the revenues of the country. The merchants of Lisbon addressed a memorial to the British commander, stating that Junot had exacted from them a forced loan of 2,000,000 cruzados, promising that payment should be made out of the enormous war-contribution which he had imposed, they had not been paid, and it was now his intention to depart without paying them; they therefore prayed for redress, and likewise that some steps should be taken for recovering their ships and property which had been unlawfully sequestered in France. There was something absolutely comic in the impudent persuasion of the French that they might continue to pillage and carry off what they pleased, under protection

of the British army. They proposed to take away the Vasco de Gama and some Portuguese frigates: the Gama, it may be remembered, was the ship wherein they had embarked great part of the treasure which they had collected. The reply was, that these vessels did not belong to them, and they were only to carry away their individual baggage. Junot actually demanded five ships to remove his own personal effects. Such a demand was of course pronounced to be inadmissible.

The first division of the French embarked under protection of the second, the second and third were protected by the British troops from the fury of the Portuguese. Wholly to restrain it was impossible, but no serious injury was done. They embarked amid the curses of the people. Nine days and nights the rejoicings continued, not by any order from the magistracy, but by the voluntary act of the inhabitants, whose joy was in proportion to the misery from which they had been delivered. It was a joy which thousands whose fortunes had been ruined, in the general calamity, partook; and which brought the last earthly consolation to many a broken heart. The enemy, while they lay in the river, were within sight of the illuminations and fire-works, and could hear the bells with which that great city rang from side to side. However brave in arms, however skilful in negotiation, they departed under circumstances more reproachful than had ever before attached to any army, or body of military men.

Lisbon is 313 miles west by south of Madrid, and contains a population of 240,000 inhabitants.

LISBON, NEW, a post town and the capital of Columbiana, a county of Ohio, on a branch of the Little Beaver. It is thirty-five miles south of Warren, thirty-four north of Steubenville, and fifty-six north-west of Pittsburg. It is a very flourishing town, and contains a court-house, a jail, a bank, a public library, a printing office, and two brick meeting-houses. In the vicinity of the town there are four merchant, and several other mills, a paper mill, a furnace, and a woollen manufactory.

LISBURN, a borough of the county of Antrim, Ireland, standing on the river Lagan, eight miles south-west of Belfast, and seventy miles north-east of Dublin. It has altogether a handsome appearance, and a considerable manufacture of linens. The damask table linen manufacture is particularly distinguished by the quality of the cloth, and the beauty of the patterns: muslin and cambric are also made. It sends one member to parliament.

LISIEUX, a considerable town of France, in the department of Calvados, and late province of Upper Normandy, seated at the confluence of the Orbeck and Gassey. The churches and public buildings are very handsome; but many of the houses are of wood. The cathedral has been much admired, and the gardens and cascades of the episcopal palaces. Here are manufactures of linen, flannel, cotton, and cyder: but the chief occupation of the neighbourhood is rearing cattle for the Paris market. It is thirty miles east of Caen, fourteen from the channel and 116 west of Paris.

LISLE or LILLE. See LILLE.

LISLE (Claudius de), a learned historiographer, born at Vancouleurs, in 1644. He studied among the Jesuits at Pontamousson; took his degrees in law, and afterwards studied history and geography; and to perfect himself in those sciences went to Paris, where the duke of Orleans, afterwards regent, and the principal lords of the court, became his scholars. He wrote, 1. An Historical Account of the kingdom of Siam. 2. A Genealogical and Historical Atlas. 3. An Abridgement of Universal History. He died at Paris in 1720.

LISLE (William de), son of the above, and the most learned geographer France has produced, was born at Paris in 1675. He became first geographer to the king, royal censor, and member of the academy of sciences. He died in 1726. He published a great number of excellent maps, and wrote many pieces in the Memoirs of the Academy of Sciences.

LISLE (Sir John), a brave loyalist in the time of the civil wars, was the son of a bookseller in London, and was educated in the Netherlands. He signalised himself upon many occasions, particularly in the last battle of Newbury; where, in the dusk of the evening, he led his men to the charge in his shirt, that his person might be more conspicuous. The king, who was an eyewitness of his bravery, knighted him in the field of battle. In 1648 he was one of the royalists who so obstinately defended Colchester, and who suffered for the defence of it. Having tenderly embraced the corpse of Sir Charles Lucas, his departed friend, he immediately presented himself to the soldiers who stood ready for his execution. Thinking that they stood at too great a distance, he desired them to come nearer: one of them said, 'I warrant you, sir, we shall hit you!' He replied with a smile, 'Friends, I have been nearer you when you have missed me.' He was executed August 28th 1648.

LISLE (Joseph, Nicholas de), a celebrated French astronomer born at Paris in 1688. He was the intimate friend of Newton and Halley, and was a member of most of the learned academies in Europe. In 1726 he was invited to Russia, and remained there till 1747. His principal work is his Memoirs of the History of Astronomy. Unlike many of the French philosophers, he joined unaffected piety to the love of science. He died in 1768.

LISMORE, a town of Waterford, Ireland, formerly a considerable city, and anciently called DunsKille; both Lis and Doone signifying a Danish mount, of which nature is the round hill of Lismore. It stands on the river Blackwater, over which it has a fine bridge, the span of the principal arch being 102 feet. The bishop's see was founded here in the seventh century, but united, in 1536, with the see of Waterford. The cathedral is spacious and handsome. Lismore castle was burned in the Irish war, in 1645; the duke of Devonshire has rebuilt it, in its ancient style, magnificently; an example imitated by Richard Edward Gumbleton, esq., who rebuilt Castle-Richard, situated upon the river's bank, three miles from Lismore, according to an elec-

gant Gothic elevation, at an expense of many thousand pounds. There is a considerable salmon fishery here. It is thirty-one miles W. S. W. of Waterford, and 100 S. S. W. of Dublin.

LISMORE, one of the Hebrides, or Western Islands of Scotland, seated at the mouth of Loch-Linnhe, or a capacious lake in Argyllshire, navigable for the largest ships to Fort William. This island is ten miles long, and from one to two miles broad. It abounds in limestone. Its population in 1791 was 1121. It is now not above 1350. It was anciently the residence of the bishops of Argyre, and gives name to the extensive parish in which it lies. It formerly abounded with deer, and elks' horns of a large size have been discovered in it. It was frequented by Fingal and his heroes, if such there were, of whom relics are still pointed out. Oats, barley, and flax, are the chief articles of cultivation. The church was once the chancel of its cathedral.

LISNE, *n. s.* Barb. Lat. *licia*, an enclosure. A cavity; a hollow.

In the *time* of a rock, at Kingscote in Gloucestershire, I found a bushel of petrified cockles, each near as big as my fist. *Hale.*

LISP, *v. a. & n. s.* Sax. *slipp*; Teut. *lispen*, *n. s.* *Spēn*; Belg. *lespen*. To speak with imperfect appulses of the tongue to the teeth or palate: to speak imperfectly in any way. See the extract from Holder.

Farewel, Monsieur Traveller; look you *lisp*, and wear strange suits; disable all the benefits of your own country. *Shakspeare.*

Come, I cannot cog, and say, thou art this and that, like a many of these *lisp*ing hawthorn buds, that come like women in men's apparel, and smell like Bucklersbury in simpling time. *Id.*

Scarce had she learnt to *lisp* a name Of martyr, yet she thinks it shame Life should so long play with that breath, Which spent can buy so brave a death.

Crashaw.

They ramble not to learn the mode, How to be drest, or how to *lisp* abroad.

Craveland.

Appulse partial, giving some passage to breath, is made to the upper teeth, and causes a *lisp*ing sound, the breath being strained through the teeth.

Holder's Elements of Speech.

I overheard her answer, with a very pretty *lisp*, O! Strophon you are a dangerous creature. *Tatler.*

As yet a child, nor yet a fool to fame, I *lisp*ed in numbers, for the numbers came.

Pope.

Pleased with the distant roar, with quicker tread, Fast by his hand one *lisp*ing boy she led. *Darwin.*

LISSA, a large town of Prussian Poland, on the borders of Silesia, was principally peopled by the Protestants who fled, in the seventeenth century, from the persecutions in Silesia, Bohemia, and Moravia. It now consists, for the greater part, of wooden buildings; and it has accordingly suffered severely from fire. It has a palace belonging to prince Sulkowski, the chief proprietor; a Catholic, and a Lutheran church, two Calvinist churches, a gymnasium, and a synagogue. Of the inhabitants (7600) one-half are Jews, and they have the greatest part of the trade. The articles of commerce are woollens;

the manufactures furs, hardware, and wines. Forty-four miles S. S. W. of Posen, and sixty-five west of Kalisch.

LISSA, an island on the coast of Dalmatia, in the gulf of Venice. It is hilly, and thinly peopled; but has a good fishery, and produces wine, olives, almonds, and figs. It has also a good harbour. Its ancient town of Issa is now a mere village. Lissa, in 1807, was occupied by the British; but, in 1810, it was taken by a French flotilla from Ancona. Fifty-six miles west of Ragusa.

LISSUS, in ancient geography, the last town of Illyricum, towards Macedonia, situated on the Drino. It had a capacious port, the work of Dionysius the tyrant, who led the colony thither, and enlarged and walled it round.—Diodorus Siculus. It is now called Alessio, in Albania.

LISSUS, a river of Thrace, running into the Ægean Sea, between Thasos and Samothrace, which was dried up by the army of Xerxes, when he invaded Greece.—Strabo, lib. 7.

LIST, *n. s. & v. a.* Fr. and Dan. *liste*; Goth. *lest*, *leit*, to speak or read. Thomson. A roll; catalogue; enrolment; hence a limit or bound: to enrol; register; hence to engage or retain for military service.

He was the ablest emperor of all the *list*.

Bacon.

The lords would, by *listing* their own servants persuade the gentlemen in the town to do the like.

Clarendon.

Some say the loadstone is poison, and therefore in the *lists* of poisons we find it in many authors.

Browne.

The king who raised this wall appointed a million of soldiers, who were *listed* and paid, for the defence of it against the Tartars.

Temple.

They *list* with women each degenerate name, Who dares not hazard life for future fame.

Dryden.

For a man to give his name to Christianity, in those days, was to *list* himself a martyr, and to bid farewell not only to the pleasures, but also to the hopes of this life.

South.

Bring next the royal *list* of Stuarts forth, Undaunted minds, that ruled the rugged north.

Prior.

He that is born is *listed*; life is war; Eternal war with woe.

Young.

LIST, *n. s. & v. a.* Fr. *lice*; Ital. *lizza*; Span. and Port. *liza* (*alizar*, Span., is to make even or smooth). An enclosed and prepared field of combat or exercise: to enclose ground for such purposes.

But telleth me what mistere men ye ber, That ben so hardy for to fighten here Withouten any jure or other offiere, As though it were in *listes* really.

Chaucer. Cant. Tales.

The ocean, overpeering of his *list*, Eats not the flats with more impetuous haste, Then young Laertes in a riotous head, O'er-bears your officers. *Shakspeare. Hamlet.* She within *lists* my ranging mind hath brought, That now beyond myself I will not go. *Duval.*

How dares your pride presume against my laws, As in a *listed* field to fight your cause?

Unasked the royal grant. *Dryden's Knight's Tales.*

Paris thy son, and Sparta's king advance, In measured *lists* to toss the weighty lance:

List!—'tis the bugle—Juan shrilly blow—
One kiss—one more—another—Oh! adieu!

Byron.

Who listens once will listen twice;
Her heart, be sure, is not of ice,
And one refusal no rebuff.

Id.

LIT, in commerce, the border of cloth or stuff: serving not only to show their quality, but to preserve them from being torn, in fulling, dyeing, &c.

LIT, in gardening, a border used by gardeners for securing their wall-trees.

LIT, in the tournament, was so called, as being hemmed round with pales, barriers, or stakes, as with a list. Some of these were double, one for each cavalier; which kept them apart, &c. that they could not come nearer to each other than a spear's length. See **DUEL**, **TOURNAMENT**, and **BATTLE**.

TO LIST, or **ENLIST**, **SOLDIERS**. Persons listed either as volunteers, or by any kind of compulsion, must be carried within four days, but not sooner than twenty-four hours after, before the next justice of peace of any county, riding, city, or place, or chief magistrate of any city or town corporate (not being an officer in the army), and if before such justice or magistrate they dissent from such enlisting, and return the enlisting money, and also 20s. in lieu of all charges expended on them, they are to be discharged. But persons refusing or neglecting to return and pay such money, within twenty-four hours, shall be deemed as duly listed as if they had assented to it before the proper magistrate; and they shall, in that case, be obliged to take the oath, or, upon refusal, shall be confined by the officer who listed them till they do take it.

LISTER (Sir Matthew), M. D., physician to queen Anne of Denmark, queen of James VI., and to king Charles I., was president of the College of Physicians, and one of the greatest practitioners of his age. He died about 1637.

LISTER (Martin), M. D. and F. R. S., nephew to the preceding, was born in Bucks, in 1638, and educated at Cambridge. He afterwards travelled into France; and at his return practised physic at York, and afterwards in London. In 1683 he was created M. D., and became fellow of the College of Physicians in London. In 1698 he attended the earl of Portland in his embassy from king William III. to France; of which journey he published an account at his return, and was afterwards physician to queen Anne. He also published, 1. *Historia Animalium Angliæ*, 4to. 2. *Conchiliorum Synopsis*, folio. 3. *Cochlearum et Limachum Exercitatio Anatomica*, 4 vols. 8vo. 4. Many pieces in the Philosophical Transactions, and other works.

LITANA, or **LITANA SILVA**, in ancient geography, a wood of the Boii, in Gallia Togata, or Cispadana, where the Romans, under L. Posthumus Albinus, sustained a great defeat, scarcely ten escaping of 25,000, and their general's head being cut off by the Boii, and carried in triumph into their temple.—Livy. Holstenius supposes this happened above the springs of Scultenna, in a part of the Appennine, between Cersinianum and Mutina; now called Selva di Lugo.

LITANY, *n. s.* Gr. *Λιτανεια*. Pezron derives this Greek word from the Celtic *lit*, a feast or solemnity. A form of prayer. See below.

Supplications, with solemnity for the appeasing of God's wrath, were, of the Greek church, termed *litanies*, and rogations of the Latin. *Hooker.*

There was never any church-liturgie but said *litanies* for their king and for their bishop! *Bp. Taylor.*

If our holy martyrs heretofore went to heaven with a *litaney* in their mouth, let not an ill-advised new-fangledness be suffered to put scorn upon that, wherein they thought themselves happy. *Bp. Hull.*

LITANY is derived from *λιτανευω*, I beseech, the expression repeated by the people in the service. At first litanies were not fixed to any stated time, but were only employed as exigencies required. They were observed with ardent supplications and fastings, to avert the threatening judgments of fire, earthquakes, inundations, or hostile invasions. About A. D. 400 litanies began to be used in processions, the people walking barefoot, and repeating them with great devotion. The days on which these were used were called rogation days; these were appointed by the canons of different councils, till it was decreed, by the council of Toledo, that they should be used every month throughout the year; and by degrees they came to be used weekly on Wednesdays and Fridays, the ancient stationary days for fasting. To these the rubric of the church of England has added Sundays. Before the last review of the Common Prayer the litany was a distinct service by itself, and used some time after the morning prayer was over; at present it is made one office with the morning service, being ordered to be read after the third collect for grace, instead of the intermissiual prayers in the daily service.

LITCHFIELD, a county of Connecticut, is bounded on the north by Massachusetts, east by Hartford, south-east by New Haven, south-west by Fairfield county, and west by New York.

LITCHFIELD, a post town, the capital of Litchfield county, in Connecticut, is situated thirty-eight miles N. N. W. of New Haven, and thirty west of Hartford. It contains a court house, a jail, a female academy, a law school, and two houses of public worship, one for Congregationalists, and one for Episcopalians, and has some trade. In the township there are nine houses of public worship; four for Congregationalists, four for Episcopalians, and one for Baptists. In the parish of South Farms there is another academy. It is a good agricultural town, and contains numerous mills and manufacturing establishments, among which are four forges for iron, a slitting-mill, nail manufactory, cotton manufactory, paper-mill, and five large tanneries. Mount Tom, on the western border of the town, is 700 feet high. There are four ponds in this town, the largest of which comprises 900 acres. There is a medicinal spring within half a mile of the court-house.

The law school in this town is a private institution, established upwards of thirty years since. It has two professors, and at present thirty-six or thirty-seven students. The members study the law by titles, in the order in which the lectures are given. The mode of instruction is by lec

ruring on the several titles of the law in an established order. The course of lectures occupies about fourteen or fifteen months. One lecture is given every day. There are two vacations of four weeks each; one in May, the other in October. The price of tuition is at the rate of 100 dollars a year, that of board from three dollars to three and a half a week.

Also a county of Ohio, on Lake Erie.

LITERAL, *adj.* & *n. s.* } *Fr. literal*; *Lat.*

LITERALLY, *adv.* } *litera.* See LETTER.

LITERALITY, *n. s.* } Following the letter;

according to the strict or primitive meaning; consisting of letters: literal, as a substantive, and literality, both signify original or primitive meaning.

The fittest for public audience are such as, following a middle course between the rigour of *literal* translations and the liberty of paraphrasts, do with greater shortness and plainness deliver the meaning.

Hooker.

No man puts out his right eye *literally*, or cuts off his right hand to prevent scandal. Certain it is, there hath been much greater inconvenience by following the letter of these words of institution, than of any other in Scripture.

Sp. Taylor.

How dangerous it is in sensible things to use metaphorical expressions unto the people, and what absurd conceits they will swallow in their *literals*, an example we have in our profession.

Broune.

Not attaining the true deuterocopy, and second intention of the words, they are fain to omit their superconsequences, coherences, figures, or tropologies, and are not sometimes persuaded beyond their *literalities*.

Broune's Vulgar Errors.

A foundation being primarily of use in architecture, hath no other *literal* notation but what belongs to it in relation to an house, or other building; nor figurative, but what is founded in that, and deduced from thence.

Hammond.

Endeavouring to turn his Nisus and Euryalus as close as I was able, I have performed that episode too *literally*; that giving more scope to Mezentius and Lausus, that version, which has more of the majesty of Virgil, has less of his conciseness.

Dryden.

That a man and his wife are one flesh, I can comprehend; yet *literally* taken it is a thing impossible.

Swift.

The *literal* notation of numbers was known to Europeans before the cyphers.

Johnson.

LITERARY, *adj.* } *Lat. literarius.* Re-

LITERATI, *n. s.* } specting or belonging

LITERATURE, *n. s.* } to letters, learning, or the learned: *literati* is a substantive of Ital. origin, signifying the learned, or any number of learned men taken collectively: literature, learning; scholastic knowledge.

This kingdom hath been famous for good *literature*; and, if preferment attend deservers, there will not want supplies.

Bacon.

I shall consult some *literati* on the project sent me for the discovery of the longitude.

Spectator.

When men of learning are acted by a knowledge of the world, they give a reputation to *literature*, and convince the world of its usefulness.

Adison's Freeholder.

All hopes of new *literary* institutions were quickly suppressed by the contentious turbulence of king James's reign.

Johnson.

We, in Scotland, boast of our professors, that they give regular lectures in all the sciences, which

the students are obliged to attend; a part of *literary* economy which is but little attended to in the universities of England.

Beattie.

Hence a moderate pain, upon which the attention may fasten and spend itself, is to many a refreshment; as a *literary* controversy.

Paley.

As boys love rows, my boyhood liked a squabble;

But at this hour I wish to part in peace,

Leaving such to the *literary* rabble,

Whether my verse's fame be doomed to cease

While the right hand which wrote it still is able,

Or of some centuries to take a lease. *Byron.*

LITERARY PROPERTY. See COPYRIGHT.

LITERATI (*letrados*, lettered), an epithet given to such persons among the Chinese as are able to read and write their language. The *literati* alone are capable of being made mandarins. See CHINA.

LITERATI may also be considered as the name of a particular sect in religion or philosophy, consisting principally of the learned men of China. It is called the *jukiao*, i. e. learned sect. It had its rise A. D. 1400, when the emperor, to awaken the attention of the people to knowledge, which had been quite neglected during the civil wars, and to stir up emulation among the mandarins, ordered forty-two of their ablest men of learning to compose a body of doctrine agreeable to that of the ancients. The work, being composed by so many learned persons, and approved by the emperor, was received with great applause. Many were pleased with it because it seemed to subvert all religion; others approved it because the little religion that it left them could not give them trouble to regard it. The court, the mandarins, persons of fortune and quality, &c., are generally *literati*. They freely tolerate the Mahomedans, because they adore, with them, the king of heaven, and author of nature; they have an aversion, however, to all sorts of idolaters, and it was once resolved to extirpate them. See CHINA.

LITERATURE, as a branch of the fine arts, has been chiefly regarded as embracing the consideration of the effects of ELOQUENCE OR ORATORY, and of the structure and influence of POETRY. Both these arts are connected in their essence and end with the sister arts of music, painting, sculpture, and architecture; that essence being in the whole of them *expression*, and the end, pleasure.

Beauty, again, is the object with which all these arts are conversant; and *words* are admitted by Mr. Burke to have as considerable share in exciting the ideas of beauty and of the sublime as any of them; but he contends that words affect us in a very different manner to nature, or the other fine arts. 'The common notion,' he observes, 'is, that the power of poetry and eloquence, as well as that of words in ordinary conversation, is, that they affect the mind by raising ideas in it of those things for which custom has appointed them to stand; but their influence on the passions may be traced to a totally different source.' 'Nobody, I believe,' says this great man, 'immediately on hearing the sounds, virtue, liberty, or honor, conceives any precise notions of the particular modes of action and thinking, together with the mixt and

simple ideas, and the several relations of them for which these words are substituted; neither has he any general idea, compounded of them; for, if he had, then some of those particular ones, though indistinct, perhaps, and confused, might come soon to be perceived. But this, I take it, is hardly ever the case. For put yourself upon analysing one of these words, and you must reduce it from one set of general words to another, and then into the simple abstracts and aggregates, in a much longer series than may be at first imagined, before any real idea emerges to light, before you come to discover any thing like the first principles of such compositions; and, when you have made such a discovery of the original ideas, the effect of the composition is utterly lost. A train of thinking of this sort is much too long to be pursued in the ordinary ways of conversation, nor is it at all necessary that it should. Such words are in reality but mere sounds; but they are sounds, which being used on particular occasions, wherein we receive some good, or suffer some evil; or see others affected with good or evil; or which we hear applied to other interesting things or events; and being applied in such a variety of cases, that we know readily by habit to what things they belong, they produce in the mind, whenever they are afterwards mentioned, effects similar to those of their occasions. The sounds being often used without reference to any particular occasion, and carrying still their first impressions, they at last utterly lose their connexion with the particular occasions that gave rise to them; yet the sound, without any annexed notion, continues to operate as before.' 'I find it very hard,' he adds, 'to persuade several that their passions are affected by words from whence they have no ideas; and yet harder to convince them, that in the ordinary course of conversation we are sufficiently understood without raising any images of the things concerning which we speak. It seems to be an odd subject of dispute with any man, whether he has ideas in his mind or not. Of this, at first view, every man, in his own forum, ought to judge without appeal. But, strange as it may appear, we are often at a loss to know what ideas we have of things, or whether we have any ideas at all upon some subjects. It even requires a good deal of attention to be thoroughly satisfied on this head. Since I wrote these papers I found two very striking instances of the possibility there is, that a man may hear words without having any idea of the things which they represent, and yet afterwards be capable of returning them to others, combined in a new way, and with great propriety, energy, and instruction. The first instance is that of Mr. Blacklock, a poet blind from his birth. Few men blessed with the most perfect sight can describe visual objects with more spirit and justness than this blind man; which cannot possibly be attributed to his having a clearer conception of the things he describes than is common to other persons. The second instance is of Mr. Saunderson, professor of mathematics in the University of Cambridge. This learned man had acquired great knowledge in natural philosophy, in astronomy, and whatever sciences depend upon mathematical skill.

What was the most extraordinary, and the most to my purpose, he gave excellent lectures upon light and colors; and this man taught others the theory of those ideas which they had, and which he himself undoubtedly had not. But it is probable that the words red, blue, green, answered to him as well as the ideas of the color themselves for the ideas of greater or less degrees of refrangibility being applied to these words, and the blind man being instructed in what other respects they were found to agree or to disagree, it was as easy for him to reason upon the words, as if he had been fully master of the ideas. Indeed it must be owned he could make no new discoveries in the way of experiment. He did nothing but what we do every day in common discourse.'

Our author then instances, in passages from Virgil, Horace, and Milton, the manner in which he conceives we are affected by verbal description:—'There is not perhaps in the whole *Æneid* a more grand and labored passage than the description of Vulcan's cavern in *Ætna*, and the works that are there carried on. Virgil dwells particularly on the formation of the thunder, which he describes unfinished under the hammers of the Cyclops. But what are the principles of this extraordinary composition?

Tres imbris torti radios, tres nubes aquosæ
Addiderant; rutili tres ignis et alitis auri;
Fulgores nunc terrificos sonitumque, metumque
Miscebant operi, flammisque sequacibus iras.

This seems to be admirably sublime; yet, if we attend coolly to the kind of sensible images which a combination of ideas of this sort must form, the chimeras of madmen cannot appear more wild and absurd than such a picture. 'Three rays of twisted showers, three of watery clouds, three of fire, and three of the winged south wind; then mixed they in the work terrific lightnings, and sound, and fear, and anger, with pursuing flames.' This strange composition is formed into a gross body; it is hammered by the Cyclops, it is in part polished, and partly continues rough. The truth is, if poetry gives us a noble assemblage of words, corresponding to many noble ideas, which are connected by circumstances of time or place, or related to each other as cause and effect, or associated in any natural way, they may be moulded together in any form, and perfectly answer their end. The picturesque connexion is not demanded; because no real picture is formed; nor is the effect of the description at all the less upon this account.

'What is said of Helen by Priam and the old men of his council, is generally thought to give us the highest possible idea of that fatal beauty.

Οὐ νηῆσις Τρῶας καὶ ἑκὴν ἡμιδα Ἀχαιεῖς
Τοιῇ δ' ἄμφι γυναικεὶ πολὺν χρόνον ἀλγεῖα πασχέειν
Λίτως δ' ἀθανάτοισι θεῆς ἑς ὡπα εἰσικειν.

They cried, no wonder such celestial charms
For nine long years have set the world in arms;
What winning graces! what majestic mien!
She moves a goddess, and she looks a queen. Pope.

Here is not one word said of the particulars of her beauty; nothing which can in the least help us to any precise idea of her person; but yet we are much more touched by this manner of men-

tioning her than by those long and labored descriptions of Helen, whether handed down by tradition, or formed by fancy, which are to be met with in some authors. I am sure it affects me much more than the minute description which Spenser has given of Belphebe; though I own that there are parts in that description, as there are in all the descriptions of that excellent writer, extremely fine and poetical.'

'Certain it is, that the influence of most things on our passions is not so much from the things themselves, as from our opinions concerning them; and these again depend very much on the opinions of other men, conveyable for the most part by words only. Secondly, there are many things of a very affecting nature, which can seldom occur in the reality, but the words which represent them often do; and thus they have an opportunity of making a deep impression and taking root in the mind, whilst the idea of the reality was transient; and to some perhaps never really occurred in any shape, to whom it is notwithstanding very affecting, as war, death, famine, &c. Besides many ideas have never been at all presented to the senses of any men but by words, as God, angels, devils, heaven, and hell, all of which have, however, a great influence over the passions. Thirdly, by words we have it in our power to make such combinations as we cannot possibly do otherwise. By this power of combining we are able, by the addition of well-chosen circumstances, to give a new life and force to the simple object. In painting we may represent any fine figure we please: but we never can give it those enlivening touches which it may receive from words. To represent an angel in a picture, you can only draw a beautiful young man winged: but what painting can furnish out any thing so grand as the addition of one word, 'the angel of the Lord?' It is true, I have here no clear idea: but these words affect the mind more than the sensible image did; which is all I contend for. A picture of Priam dragged to the altar's foot, and there murdered, if it were well executed, would undoubtedly be very moving: but there are very aggravating circumstances, which it could never represent:

Sanguine fœdenter quos ipse sacraverat ignes.

As a farther instance, let us consider those lines of Milton, where he describes the travels of the fallen angels through their dismal habitation:

O'er many a dark and dreary vale
They passed, and many a region dolorous;
O'er many a frozen, many a fiery Alp;
Rocks, caves, lakes, fens, bogs, dens, and shades
of death.

A universe of death.—

Here is displayed the force of union in

Rocks, caves, lakes, dens, bogs, fens, and shades;
which yet would lose the greatest part of the effect, if they were not the

Rocks, caves, lakes, dens, bogs, fens, and shades—
—of Death.

This idea or this affection caused by a word, which nothing but a word could annex to others, raises a very great degree of the sublime;

and this sublime is raised yet higher by what follows, 'a universe of Death.' Here are again two ideas not presentable but by language; and a union of them great and amazing beyond conception; if they may properly be called ideas which present no distinct image to the mind:—but still it will be difficult to conceive how words can move the passions which belong to real objects, without representing these objects clearly. This is difficult to us, because we do not sufficiently distinguish, in our observations upon language, between a clear expression, and a strong expression. These are frequently confounded with each other, though they are in reality extremely different. The former regards the understanding; the latter belongs to the passions. The one describes a thing as it is; the other describes it as it is felt. We yield to sympathy what we refuse to description. The truth is, all verbal description, merely as naked description, though never so exact, conveys so poor and insufficient an idea of the thing described, that it could scarcely have the smallest effect, if the speaker did not call in to his aid those modes of speech that mark a strong and lively feeling in himself. Then, by the contagion of our passions, we catch a fire already kindled in another, which probably might never have been struck out by the object described: and words, by strongly conveying the passions, by those means which we have already mentioned, fully compensate for their weakness in other respects. It may be observed, that very polished languages, and such as are praised for their superior clearness and perspicuity, are generally deficient in strength. The French language has that perfection and that defect. Whereas the oriental tongues, and in general the languages of most unpolished people, have a great force and energy of expression; and this is but natural. Uncultivated people are but ordinary observers of things, and not critical in distinguishing them; but, for that reason, they admire more, and are more affected with what they see, and therefore express themselves in a warmer and more passionate manner. If the affection be well conveyed, it will work its effect without any clear idea; often without any idea at all of the thing which has originally given rise to it.'

These ideas suggest, at least, the basis on which the influence of literature on the character and manners of nations must rest. When oratory and poetry become distinct arts, they claim, of course, distinct discussion. See POETRY and ORATORY.

LITHANTHRAX, or pit coal, is a black or brown, laminated, bituminous substance; not very easily inflammable, but, when once inflamed, burns longer and more intensely than any other substance. See COAL. Of this substance three kinds are distinguished by authors. The residuum of the first, after combustion, is black; the residuum of the second is spongy, and like pumice stone; and the residuum of the third is whitish ashes. Some fossil coal, by long exposure to air, falls into a grayish powder; from which alum may be extracted. Fossil coal by distillation yields, 1, a phlegm or water; 2, a very acrid liquor; 3, a thin oil like naphtha; 4, a thicker

oil, resembling petroleum, which falls to the bottom of the former, and which rises with a violent fire; 5, an acid concrete salt; 6, an un-inflammable earth remains in the retort. These constituent parts of fossil coal are very similar to those of amber and other bitumens. From some sorts of it a varnish may be made by fat oils. Fixed alkali has never been found in any species of it; nor sulphur, unless when mixed with pyrites. None of the species are electric per se. For exciting intense heats, as in furnaces for smelting iron ore, and for operations where the acid and oily vapors would be detrimental, as in drying of malt, fossil coals are previously charred, or reduced to cokes. See COKE. Pit-coal affords tar, and, on that and other accounts, is ranked by modern chemists among vegetable substances.

LITHARGE. Fr. *litharge*; Lat. *lithargyrum*. Lead vitrified with copper.

Our orpiments and sublimed mercury,
Our grounden *litharge* eke on the porphurie,
Of eche of thise of unces a certain,
Not helpeth us; our labour is in vain.

Chaucer. *Cant. Tales*.

I have seen some parcels of glass adhering to the test or cupel as well as the gold or *litharge*. Boyle.

Litharge is properly lead vitrified, either alone or with a mixture of copper. This recement is of two kinds, *litharge* of gold, and *litharge* of silver. It is collected from the furnaces where silver is separated from lead, or from those where gold and silver are purified by means of that metal. The *litharge* sold in the shops is produced in the copper works, where lead has been used to purify that metal, or to separate silver from it. Hill.

Litharge of lead is often used in the analysis of the ores of what are called the perfect metals.

Parkes's *Chemical Catechism*.

LITHARGE is a preparation of lead, usually in form of soft flakes, of a yellowish reddish color. If calcined lead be urged with a hasty fire, it melts into the appearance of oil; and, on cooling, concretes into litharge. According to the degree of fire and other circumstances, it proves of a pale or deep color; the former called litharge of silver, the latter litharge of gold.

LITHE, *adj.* } Sax. *æliðe*; Mæso-Goth.

LITH'ER, *adj.* } *litha*, to bend. Flexible; limber; soft; pliant.

When it was night, to slepe I laie,
Right as I was wont for to dooen,
And fill aslepe wondir sone,
As he that was werie forgo
On pilgrimage milis two
To the corps of saint Leonarde,
To makin *lith* that erst was harde. Chaucer.

Thou antick death,
Two Talbots winged through the *lither* sky,
In thy despiht shall 'scape mortality.

Shakspeare.

The' unwieldy elephant,
To make them mirth, used all his might, and
wreathed
His *lithe* proboscis. Milton's *Paradise Lost*.

LITHIATE, from Gr. *λίθος*, a stone, a neutral salt, formed by the combinations of the lithic acid with various bases. See CHEMISTRY.

LITHIC ACID, an acid extracted from the urinary calculus. See CHEMISTRY.

LITHOGRAPHY, *n. s.* } Gr. *λίθος*, a stone.
LITHOMANCY, } Lithography is the
LITHONTRIPTICK, } art of engraving or
LITHOTOMY, } writing on stone:
LITHOTOMIST. } lithomancy, Greek,

λίθος, a stone, and *μαννία*, divination; prediction by stones: lithontripstick, Fr. *lithonriptique*, a medicine that dissolves stones in the kidneys or bladder: lithotomy, Gr. *λίθος* and *τεμνω*, to cut, the art or practice of cutting for the stone: lithotomist, one who professes the art of extracting stones from the bladder.

As strange must be the *lithomancy*, or divination, from this stone, whereby Helenus the prophet foretold the destruction of Troy. Broune.

If it be certain that *lithotomy* is more likely to be followed by the patient's recovery, when no manual roughness is exercised, rapid operating must be condemned by the judicious and discerning.

Dr. A. Rees.

LITHOGRAPHY is the art of taking impressions from drawings made on stone. The general process consists in drawing the design upon the absorbent body with a soapy chalk, and in decomposing this soapy design by an acid, which, liberating the fatty matter present, greases the stone where the design existed, or rather brings it into such a state that, being wetted and then rolled with the ink-roller, no ink will adhere except at the parts underneath the original design. From this it will be obvious that the process depends entirely on chemical principles, and is thus distinct from letter-press or copper-plate printing, which are altogether mechanical. On this account it has in Germany been called *chemical printing*; and, as metallic plates can be prepared to be printed from in a similar manner, lithography is considered only as a branch of chemical printing.

Alois Senefelder may be considered as the inventor of this beautiful art. His first professional essays were executed in 1796. The difficulty he experienced in writing backwards, led him to the process of transfer, and the use of dry soap, which was found to leave permanent traces, which would give impressions, naturally led to the mode of chalk-drawings. Having made considerable improvements, Mr. Senefelder obtained, in 1799, a patent privilege for Bavaria, when he made known his process, and afterwards entered into partnership with Mr. André, of Offenbach, who proposed to establish presses, and take out patents at London, Paris, and Vienna. For this purpose Senefelder came to London with a brother of André's, and the invention having been much spoken of, under the name of polyautography, most of the principal English artists made trials of it. Unfortunately, however, the art of printing from the stones was not then fully understood, and the difference between the materials of Germany and those of England, used both for the purposes of drawing and printing, caused constant failures, and the artists in succession abandoned the practice of it. To this cause is to be attributed the unpopularity of lithography in England, as it was left entirely in the hands of amateurs, whose productions, generally speaking, did no credit to the art, and

whose faults were in some degree supposed to be those of the art itself. In August, 1800, Senefelder, who had now separated from André, went to Vienna, where, after much difficulty, a patent was obtained, and extensive preparations were made, for applying his process to print cottons; but bad management, and some unfortunate circumstances, prevented his success, and he returned to Munich in 1806, leaving the establishment in other hands.

Mr. Mitterer, professor of drawing at the public school at Munich, now (1806), practised lithography to multiply copies for the pupils, and is said to have invented the chalk composition in its present form, or at least to have improved it greatly. From this period the practice of the art has extended and improved rapidly, and more particularly at Munich, where several establishments were formed, for the purpose of applying it to the fine arts, as well as for printing writings and official forms, for the different departments of the government.

In October, 1809, Senefelder was appointed inspector of the Royal Lithographic Establishment at Munich, for printing from stone a complete map and survey of Bavaria, since which period he has devoted his time to experiments, and to writing the history of his invention. Among other points of improvement, to which his attention has been directed, is a substitute for the stones, which are inconvenient to use on account of their weight, and they are also liable to break in the press, when used without due caution, or when they contain flaws. For this purpose he has made a composition of drying oil, finely ground earth, and other substances, which is thinly spread over pieces of parchment; but it has not hitherto been found to answer. The surface cracks after repeated wetting and exposure to the power of the press, and the printing ink is then taken in the cracks and spoils the impressions. Thus a very small number only of good impressions can be obtained.

From the period of André's English patent, till Mr. Hullmandel commenced his establishment in London, but little progress was made in this country; but that ingenious artist formed a new era in lithography, and in many cases English printing is now equal, if not superior, to the continental works.

The principal operation in lithography consists in *impregnating* a stone with fatty substances, very superficially, so that, in consequence of the affinity which exists between these substances and their power to repel water, the points or lines formed with them on stone shall be capable of retaining other such substances whenever they are brought in contact with them; while these substances will be repelled by the moisture which the stone has imbibed in those parts which they do not cover. Thus, when lines have been made on a stone with lithographic ink, or crayons, into the composition of which fatty bodies enter, and afterwards a roller charged with a fat or oily ink is passed over these stones, this ink will be deposited on the traces of the crayon, or of the lithographic ink, in a thin layer, but sufficient to produce an impression; whilst it will not adhere to any parts of the stone which are not

impregnated with the fatty matter; and which, besides, are kept in a moist state. It is on this point that all the art of lithography depends; and it is only requisite, therefore, to discover what substances, by a proper combination, can be made most suitable to answer the double purpose of producing a good drawing, and of receiving the ink, which is to form the impression. It will be apparent that it is not a matter of indifference what kind of fatty substance is used with which to form, a drawing, or to trace a writing, on the stone. These substances, in their natural state, if brought into contact with a stone, would diffuse themselves in every direction; and, consequently, would not be capable of forming points or lines sufficiently fine and well defined, to give to a drawing the delicacy, precision, and harmony, which it ought to have. It is necessary, then, to find a liquid composition, by which may be traced lines as clear and well defined as those made on paper with Indian ink; and also a solid preparation, which will produce the same results as the common crayons used by artists. Hitherto, it has only been possible to effect this by forming a kind of soap, by the combination of fatty or resinous substances with an alkali. This soap, when liquid, does not spread as grease and oils do; and, when in a solid state, it has such a degree of consistency as to enable the artist to produce upon stone all the effects of a drawing. But as soapy bodies are, in general, soluble in water, and as the water with which it is necessary to moisten the stone, and consequently the drawing, before applying the printing-ink, would destroy the drawing, by dissolving the soapy substance with which it was formed, it was found necessary to find a means of reducing this soap to the state of a fatty body insoluble in water. This is effected by spreading over the stone and over the drawing an acid, which, by uniting with the alkali of the soap, reduces the latter to the state of grease. This operation is called the preparation.

Lithographic ink, if good, will be soluble in distilled water, which is capable of perfectly dissolving common soap. It ought to flow freely from the pen, and not spread on the stone; it must also be capable of forming extremely fine lines, and should be very black, in order to render the work of the artist perfectly clear and distinct. The most essential quality, however, is that of imbedding itself firmly in the stone, so as to reproduce the most delicate touches of the drawing, and to afford a great number of impressions: in order to do this, it is necessary that it should be capable of resisting the acid which is spread over it in the preparation, so as not to have its fatty particles either removed or altered. A host of recipes, for making lithographic ink and crayons, have been published, and scattered both in Germany and France. M. Senefelder, in his work, gives eight receipts for making this drawing-ink; yet, assuredly, he has not published that which he considers the best. We think it superfluous to give these receipts, as it would only serve to create uncertainty in choosing from among them, and especially as they are all considered more or less inferior to the following:—

	Drachms.
Soap, from suet or tallow, dry . . .	30
Mastic, in tears	30
Soda of commeree	30
Shell-lac	150
Fine lamp-black	12

Soap made of tallow is to be preferred to that prepared from oil. But as soap is more or less hard, according to its age and the dryness of the situation in which it has been kept, it must not be used in exactly the above proportions with the other articles, without regard to its being either moist or dry. To obviate this source of error, and to obtain the exact proportions, the soap should be cut with a knife into thin slices, and exposed to the sun and air until it is perfectly dry; it is then to be put into a box lined with paper, and thus kept in a very dry place until it is wanted for use. The best lamp-black, which is the product of the combustion of resin, should be used.

In order to melt these materials, a copper, cast-metal skillet, should be used, which should be furnished with a wooden handle; it will also be found convenient for it to have a lip on its edge, in order that the material may pass more readily into the moulds, particularly when crayons are to be made. The soap is first put into this vessel, which is then to be placed over a brisk fire in a chafing-dish; when this is well melted the shell-lac is to be thrown in, which will fuse very readily; the soda is then to be added, a little at a time, and after this the mastic, taking care to stir it with a spatula, furnished with a wooden handle; lastly, the lamp-black is gradually put in, stirring it between every successive addition until the mixture is complete. A very brisk fire is used that the materials may be perfectly fused. The shell-lac is apt to swell up; it is, therefore, put into the skillet gradually that it may not boil over. When all these materials are well incorporated, they are poured out on a plate of cast-iron, made very warm and rubbed over with oil, in order that the composition may be easily detached from it. Before the mass is poured on the plate, ledges are formed round it with pieces of wood, which serve to prevent the mass from running off, and enable us to preserve it of an equal thickness throughout; when these pieces of wood are removed, the composition is to be cut into stripes by means of a knife, which should be guided by a straight ruler; this must be done whilst the composition is warm. Little sticks are thus formed, similar to those of Indian ink; it would, however, be more convenient to have moulds in which to pour the composition.

Many who have written on the subject of lithography have recommended, not merely the melting, but the partial burning of the materials with which lithographic ink and crayons are to be composed; but this is a bad method, since it is impossible in this way always to obtain the same combinations, as some portion of the materials would thus be wholly destroyed. The means of obtaining good ink must depend on the nature of the materials, and upon their being duly proportioned to each other, and, to accom-

plish these ends, it is not necessary to have recourse to combustion.

The ink, of which we are about to give the composition, is used either with the pen or the camel's hair pencil, for writings, dotted, and aquatinta drawings, those of a mixed character, or those intended as imitations of wood or other engravings.

We proceed to describe, practically, the process for preparing the autographic ink, or the kind which is suitable for transferring to stone the writings or drawings which have been executed on paper, prepared for that purpose.

This ink ought to be mellow, and somewhat thicker than that used immediately on the stone so that, when it is dry on the paper, it may still be sufficiently viscous to cause it to adhere to the stone by simple pressure. The following is the manner of preparing the ink:—

	Drachms.
Dry soap	100
White-wax, free from tallow . . .	100
Mutton suet	50
Shell-lac	50
Mastic	50
Lamp-black	30 to 35

These materials are to be melted in the way we have described for lithographic ink.

The operation, by which a writing or drawing is transferred from paper to stone, not only affords the means of abridging labor, but also of producing the writings or drawings in the same direction in which they have been traced; whereas, when they are executed immediately on stone, they must be performed in a direction opposite to that which they are eventually to have. Thus it is necessary to draw those objects on the left, which, in the impression, are to be on the right hand. To acquire the art of reversing subjects, when writing or drawing, is both difficult and tedious; while by the aid of transparent, and of autographic, paper, impressions may be readily obtained, in the same direction as that in which the writing or the drawing has been made. In order to make a transfer to stone of a writing or drawing, in lithographic ink or in crayons, or an impression from a copper-plate, it is necessary, first, that the drawing, or transcript, should be on a thin and flexible substance, such as common paper; secondly, that it should be capable of being easily detached from this substance, and transferred entirely to the stone, by means of pressure. But as the ink with which a drawing is traced penetrates the paper to a certain depth, and adheres to it with considerable tenacity, it would be difficult to detach them perfectly from each other, if, between the paper and the drawing, some substance were not interposed, which, by the portion of water it is capable of imbibing, should so far lessen their adhesion to each other, that they may be completely separated in every point. It is to effect this that the paper is prepared, by covering it with a size, which may be written on with facility, and on which the finest lines may be traced, without blotting the paper. Various means may be found of communicating this property to paper. The following preparation is always found to succeed, and

when the operation is performed with the necessary precautions, admits of the finest and most delicate lines being perfectly transferred, without leaving the faintest trace on the paper. For this purpose it is necessary to take a strong unsized paper, and to spread over it a size, prepared of the undermentioned materials:

	Drachms.
Starch	120
Gum Arabic	40
Alum	21

A moderately thick paste is made with the starch, by means of heat; into this paste is thrown the gum arabic and the alum, which have been previously dissolved in water, and in separate vessels. The whole is mixed well together; and it is applied warm to the sheets of paper by means of a brush, or a large flat hair pencil. The paper may be colored by adding to the size a decoction of French berries, in the proportion of ten drachms. After having dried this autographic paper, it is put into a press, to flatten the sheets; and they are made smooth by placing them, two at a time, on a stone, and passing them under the scraper of the lithographic press. If, on trying this paper, it is found to have a tendency to blot, this inconvenience may be remedied by rubbing it with finely powdered gum sandarach. We give below another receipt, which will be found equally useful; and which has the advantage of being applicable to thin paper, which has been sized. It requires only that the paper be of a firm texture.

	Drachms.
Gum tragacanth	4
German glue	4
Spanish white	8
Starch	4

The tragacanth is to be put into a large quantity of water, to dissolve, thirty-six hours before it is mixed with the other materials. The glue is to be melted over the fire in the usual manner. A paste is made with the starch; and after having, whilst warm, mixed these several ingredients, the Spanish white is to be added to them, and a layer of this sizing is to be spread over the paper, as already described: taking care to agitate the mixture with the brush, to the bottom of the vessel, that the Spanish white may be equally distributed throughout the liquid.

We must not omit to notice two autographic processes which facilitate and abridge this kind of work, when it is desired to copy a fac simile, or a drawing in lines. The first of these methods is to trace, with autographic ink, any subject whatever, on a transparent paper, which is free from grease and resin; like that which is known in commerce by the name of papier vegetal; and, to transfer it to stone, this paper is to be covered with a transparent size; this operation is very difficult to execute, and requires much address, in consequence of the great tendency which this paper has to cockle or wrinkle when it is wetted. Great facilities will be found from using tissue paper impregnated with a fine white varnish, and afterwards sized over. In the second process, transparent leaves, formed of geatin or fish glue, are employed; and the design is traced on them

with the dry-point, so as to make an incision; these traces are to be filled up with autographic ink, and thence transferred.

The German artists principally make use of various tints, which are added to the original black and white impression. This mode of printing has been rarely adopted in this country; but, when employed with judgment, is capable of producing very beautiful effects. We may illustrate this by reference to a chalk drawing done in the common manner: when finished, an impression of this drawing is thrown on a polished stone, and a transparent coating of a waxy substance laid over the impression thus transferred. In this state it is sent to the artist, who must scrape away this waxy coating wherever he wishes white lights to appear. To produce a good effect, in this way, requires some judgment; the lights must never be scraped out too broad, for the impressions will have a snowy appearance, which will be very disagreeable, the effect must rather be produced by small scratches close to one another, it being well borne in mind that half tints of white cannot be scraped out. Every line scraped will be positive light; but the effect of half tints must be produced by the fineness of the lines, and not by the more or less scraping of the waxy coating. In scraping, the artist must feel that he has actually removed the waxy coating, and that the tool has touched the face of the stone, if not, the intended light will not tell, and the scraping becomes useless. For imitating the rough touches of white chalk, it is a very good plan to jag (by striking with a knife) the edge of the tool used in scraping. With such a tool, a ruggedness will be given to the scraping, which could not be easily imitated in any other manner; but, unless they are scraped with art, these lights will have a heavy and mechanical look in the printing.

There is another method of executing the tint plates, which some persons prefer: it is as follows. After the printer has thrown off an impression of the drawing on a polished stone, instead of laying on a waxy mixture, the stone is sent to the artist, who lays on gum water over all those parts which are intended to be white; a margin of gum must also be added, and the rest is done by the printer.

Lithographic chalk should have the qualities of a good drawing crayon, it should be even in texture and carry a good point. It is, however, difficult to avoid making it too soft and greasy on the one hand, and too brittle on the other. For the chalk, as for the ink, more or less of the soap, wax, and tallow, may be used, as the extent of the burning may render necessary, and the remedies pointed out for defects of the ink will enable the operator to judge of what is wanting.

The following proportions are the best:

	Ounces.
Common soap	1½
Tallow	2
Virgin wax	2½
Shell-lac	1

The manipulation is similar to that for the ink. It is well, however, to throw in a little of the

wax just before the flame is extinguished. Less black must be mixed with the chalk than with the ink, its only use being to color the drawing, so that the artist may see the lines he traces.

When the whole is well mixed, it should be poured into a mould, and very strongly pressed to prevent any bubbles, which would make the texture irregular.

We may now furnish some useful information relative to the kind of stone to be employed in lithography. The country adjacent to that wherein lithography originated is abundantly provided with stones suited to this art. There are immense quarries of it, disposed in layers, along the Danube, in the country of Pappenheim, and in several other spots. The principal quarries worked are at a village called Solenhofen. Every one admitting the existence of a first cause, must believe that Providence, who destined to this age the invention of an art favorable to the progress of civilisation, had formed a considerable mass of stones ready prepared for the service of lithography. They are, in fact, found disposed in layers of one, two, three, or more inches in thickness, in such a manner that it is merely necessary to raise them from the quarries, and to cut them into convenient sizes, their thickness being equal throughout in each strata. Nature, who acknowledges neither privilege nor monopoly, has distributed the same benefit amongst other countries also, though in a way less striking. Lithographic stones are found in France, Italy, Prussia, Britain, Spain, and in the United States. Researches made with greater care would undoubtedly discover them in a great number of places. All the lithographers of Paris make use, almost exclusively, of the stones from Germany. The reason of this is, that the French quarries have been badly worked, either from want of funds or ignorance. The first masses which presented themselves on the superficial strata have been employed; these stones are full of hollows, veins, or other defects, though otherwise of a good quality, being harder than those of Solenhofen. Those of the first quality, from Germany, are preferred for designs in crayons; those found in commerce are not all equally good. The following are the properties which denote the goodness of a lithographic stone.

White stones are generally inferior to other kinds, being less durable. Those of a yellowish, or rather a grayish tint, are to be preferred on account of their durability, and because their grain is generally most equal. Those which are covered with points, or little whitish parts resembling vermicella, ought to be altogether rejected, especially when it is necessary to make delicate drawings in crayon; as the marblings or shades of different colors deceive the eye of the artist, and prevent his giving to his work that effect and harmony which it ought to have. The strata with stripes of a more transparent tint than the rest of the stone ought to be rejected, not only because they are liable to split, but because they take the ink more readily in those parts, and leave the traces of it more strongly upon the designs. Stones, however, are met with, which have fine lines, or threads of a brownish hue,

which do not present any impediments to the success of the artist.

Stones which are hard and homogeneous acquire a more equal surface, and are better adapted to the harmony of the tints; they give a greater number of impressions without clogging, and furnish proofs more clear and brilliant, whilst the contrary is the case with those which are softer; the durability of a stone may be ascertained by scratching it with the point of a knife. Those which are soft retain with more difficulty the traces of the design in the light touches; they clog more readily, and consequently afford a smaller number of impressions. The metallic pen cuts them easily, which produces a clogging, and prevents the ink from flowing. The grain of these stones is always coarse and unequal. Those which have holes, or those which are unequal in their grain or in their hardness, present the same inconvenience; they check the point of the pen when employed in imitating line engraving, and do not admit of the artist giving clearness and neatness to his work. The soft parts being also more easily acted on by the acid are corroded, and injure the parts of the design with which they have been covered. Stones which have any defect whatever, ought never to be used for the crayon, with which it is necessary to draw with particular care; they are therefore generally used for works in ink. The thickness of the stones is immaterial, provided they are not too thin; for in this case there is a risk of breaking them in the operation of printing. Their thickness ought to be proportioned to their surface; the smallest should not be less than an inch, when thicker they have the advantage of serving for a considerable number of designs; but they are very inconvenient when it is desired to remove or export them. It sometimes happens that a stone, the surface of which presents all the qualities which have just been spoken of, and which has succeeded well in the impressions of one or more copies, is found to be bad in the succeeding impressions.

The stones proper for lithography are composed of lime, argil, and silex. The first of these substances predominates, the third is found in very small quantity. A stone entirely calcareous does not answer for lithography, as has been proved by the marble of Carrara; the crayon and ink adhere to this stone with difficulty, and are readily effaced from it; the lines and the shades in a great measure disappear. One of the most certain indications of lithographical properties is the conchoidal fracture. All stones of this kind will be found good if they are also hard, and have all the fineness of grain and homogeneity of texture which are necessary.

The mode of *polishing* them must next be adverted to. Polishing is an operation by means of which a uniform and flat surface, and a polish more or less high, is given to the stone, according to the different kind of design or of work for which it is intended. The care and precision with which this first preparation of the stone is effected, are not of less importance to the execution of the design than to that of the impression. A stone, the grain of which is unsuitable for the

crayon, will not allow the artist to regulate his tints, and to give them harmony; when he works in ink, or with the dry point, he will meet with other obstacles if the polish of the stone be not perfect; and in each case his drawings will be defective; but they will be more so, if in the surface of the stone there are undulations, hollows, stripes, &c. Stones are polished with sand, by rubbing them one on the other. The best sand for this purpose is that quartzose sand which is fine and hard-grained. In Paris they in general make use of a yellow sand, which, though fine, requires to be sifted. It is necessary to be very careful that the sand which is used be not mixed with gravel or any sharp angular substance, which would form stripes on the stones, the hollows of which would not receive the printing-ink, and there would consequently be white marks on the impressions. This serious evil is avoided by sifting the sand before it is used, and by rubbing the upper stone slowly at the commencement of the operation, and occasionally turning it round upon the lower stone.

The kind of design for which a stone is intended determines the kind of polish which should be given to it. A work in which the crayon is used cannot be executed unless the stone have a grain left upon it; all other kinds of drawing require surfaces which have the polish of marble. Whether we wish to employ a fresh stone, or to renew one which has been already used, it must equally undergo the process of polishing. For this purpose it is placed on a table; a little sand is very equally sifted over it, which is moistened with a very little water. On the first stone is placed a second, as nearly as possible of the same dimensions, and the upper one is rubbed about in a direction nearly circular, but drawing it successively towards the four corners, and continually changing the relative position of the stones, so that every part of their surfaces may be subjected to an equal degree of friction. If this be neglected, and the stones be pressed on each other, and the circular motion be always the same, hollows will be formed, and uneven surfaces produced; and these irregularities will show themselves in the impressions. It is easy to ascertain, by means of a straight line, whether the stone be well levelled.

At first the motion should be slow, and the pressure trifling, the rapidity of the one and the force of the other increasing as the sand becomes equally distributed. When the sand becomes reduced to a paste, it no longer acts upon the stone; fresh sand must be taken until the stone be perfectly smooth, and there no longer remain on it the traces of any former design. The ink which formed this design may have been made to disappear without our having removed the source of its reproduction. This cause exists in the particles of the fatty substance of the crayon, or of the ink, which have penetrated below the surface of the stone, and which, being again brought in contact with the printing-ink, will retain it, and reproduce part of the old design. It may be known that this cause exists, when it is perceived that in the wet stone there are light traces of the former drawing. It is

then necessary to continue the rubbing until these have entirely disappeared. The aquafortis employed in the preparation of the stone for printing will, by itself, produce this effect when the traces are very superficial. It should be remarked, that, of two stones of the same size, the lower becomes polished sooner than the upper one. To avoid this it is only necessary to change their position.

In order to produce, on a stone intended for a drawing on crayon, the grain which it ought to have, it is necessary, after having treated it as we have just described, to sprinkle and rub it again with fine sand, which, by the friction it produces, may be made to give the desired grain. When it is wished to obtain a coarse grain, the stone is rubbed for a less space of time with the sand, this being also renewed more frequently; but the rubbing with the same sand is prolonged when a very fine surface is required. This rubbing, however, should not be continued too long, or the grain which has been produced will be destroyed. The state of the grain may be judged of by blowing briskly on the surface of the stone, on which has been placed a little water, and then examining its plane by looking at it in an oblique direction.

When stones intended for drawings in ink, or with other materials fit for lithography, are to have a very high polish given to them, the procedure is the same as that we have just described, excepting only, that, after having produced a fine grain on the surface, the rubbing is continued with the same sand reduced to a thin paste, taking care to wet the stones when the adhesion between them becomes so great as to prevent them moving freely. The workman, when he discontinues his labor, should not leave the stones in this state, as they would adhere, and could then be separated only by keeping them in a vessel full of water.

The stones, having acquired by the operation described a certain degree of polish, are well washed, in order to remove the grains of sand, which might produce scratches; a fine polish is then to be given to them by means of pumice-stone. This polishing is effected on one stone at a time, by rubbing it with a large piece of pumice-stone after it has been slightly moistened. The rubbing should be in a straight line, sometimes in one direction and sometimes in the opposite, passing successively over all parts of the surface of the stone. By this rubbing with the pumice-stone, and the white paste which it produces, only adding water enough to preserve a slight degree of moisture, the beautiful polish of marble is produced. It is afterwards necessary to wash the stone in a considerable quantity of water, rubbing it with the hand, or with a cloth entirely free from grease, and thus to remove any particles of matter, which, by their position on the surface of the stone, would present a substance intermediate between the surface and the drawing, which would prevent the adhesion of the latter.

Three kinds of grain may be given to stones, the coarse, the middling, and the fine. The first produces designs, the proofs of which have not the finish and delicacy of those which are ob-

tained on the two others. The second ought in every case to be preferred, for it possesses all the properties requisite for beauty of execution, although the proofs which it produces have not an appearance quite so soft and mellow as those from stones with the finest grain. But these last have the great disadvantage of soon losing the delicacy of the design, of clogging readily, and consequently of affording much fewer proofs. In every case it is necessary that the grain should be smooth and uniform over the whole surface of the stone, otherwise the lines traced by the crayon will be found nearer to each other, or more strongly marked in some places than in others; the proofs, in reproducing the same defects, will be found without harmony and without effect.

When it is intended to execute very beautiful designs, it is necessary to reject the stones which are too soft; those which have hollows; those whose texture is softer in particular spots than in the general mass; those which are not of equal thickness, and which have inequalities in their upper surfaces; those, in short, which are not of a good quality and well polished.

A last precaution, is, to preserve the grained or polished stones under cover, to protect them from the air and the dust, and not to touch them with the hand, or any greasy substance, on that side which is to be worked upon. They are preserved by wrapping them up carefully in an envelope of white paper. To prevent the stone being soiled by the hand, with which it is very likely to come in contact, Mr. Hullmandel, in his admirable work on Lithography, recommends the use of a rest, A B, fig. 2, which supports the hand, and is furnished with a slider K, which may be tightened by a screw *d*, at any required point. The smaller diagram represents the moveable rest taken from its place, with the supporting plane *i i*.

As, in graining the stone, a portion of dust will always remain on its surface, notwithstanding the washing previously performed by the workman, this dust existing between the chalk of the stone itself, will hinder many portions of the pencil from adhering properly, and thereby occasion some of the tints to be rotten. It is prudent, consequently, on the part of the draughtsman, either to wash the stone well in pure water, or to rub the face with a piece of clean flannel, and afterwards to brush off the dust: great care must be taken not to begin the drawing until the stone be perfectly dry. These directions refer solely to grained stones, polished stones requiring a mere wiping with a clean cloth or brush.

As it is very difficult to alter any part of a drawing, and it is almost always necessary to execute it reversed on the stone, in order that it might print the right way, it is requisite to have a correct outline. If any parts be made out on the stone with a lead pencil, it must be drawn with a very hard one, and the line must be extremely fine and delicate; otherwise, if a thick line be drawn, the portions of lead existing between the face of the stone and the chalk will hinder the latter from adhering, and a white line will appear where the lead pencil had been

applied. The best method to follow is this:—having made a correct outline of the subject on paper, take some French tracing paper (never use in any case oiled or varnished paper), and place a piece over the outline; as this paper is transparent, the whole drawing will be seen through. You may now trace an outline either with a soft lead pencil (if a chalk drawing is intended), or with red chalk (if an ink drawing). This outline, when completed, must be placed on the stone true and square, another thick piece of paper placed over the whole, and this latter piece well rubbed (without shifting) at the back, with a piece of ivory, or the handle of a knife, when the entire outline will be found to be transferred, reversed on the stone.

We have stated above that the outline on the French tracing-paper must be made with red chalk, if an ink drawing is the object; because black-lead, however soft, comes off with great difficulty on a polished stone, whereas red chalk comes off very easily.

The method given above is very convenient when the subjects are small; but, when they are above eight or nine inches in length, and accuracy is required, it is unsafe to follow it, because the paper extends by rubbing, and a double, or at least a thick and blurred outline, is the consequence. When the drawing is large, the tracing-paper must be placed over the original outline, and the lines drawn with a pen and Indian or common ink, and the upper face (of this tracing), or side on which the ink lies, be rubbed over with a piece of cotton and black lead, or red chalk; the overplus of the dust must then be well shaken off, and the face of the paper thus rubbed laid on the stone, so that the ink outline (which is clearly seen through) may be the reverse of the original; these lines must be carefully gone over with a blunt etching needle, when a pure outline will be found traced on the stone. As soon as the lines have all been gone over, the paper may be pulled up, and the face of the stone, being well brushed, is ready to be commenced upon with the drawing.

In order to copy the drawing, so that it may be reversed, the best method is to place the original drawing at the foot of, and before, a looking glass, and copy from the glass instead of consulting the drawing. In placing the drawing upon the stone, it is very important to recollect that a space or margin, of at least half an inch, and more if possible, must be left between the extremities of the drawing and the edge of the stone, and a still larger space left at the bottom than at the top of the drawing, in order to have room for the writing, if any is intended to be placed under the subject; for, unless this be attended to, the drawing cannot be printed, and the whole labor of the artist is lost. It happens, however, that some stones have small black veins, like hair lines, which run across them, as well as other little imperfections. The artist ought, therefore, always to take these defects (if existing) into consideration, when he puts his tracing on the stone; for often the drawing may be so placed that these black veins (which are apt to print) are lost in the dark tints of the foreground: or if there are detached and separate subjects on

the stone, he may place these so that the veins shall come between them, as in this case they are of little consequence: or else, if the stone is large enough to allow it, there is no absolute necessity to place the drawing in the middle; but it may be made on one side so as to avoid the veins, &c.

The drawing, being finished on the stone, is sent to the lithographic printer, on whose knowledge of his art the success of the impressions entirely depends. The first process is to etch the drawing, as it is called. This is done by placing the stone obliquely on one edge over a trough, and pouring over it very dilute nitric acid. It is poured on the upper part of the stone, and runs down all over the surface. The stone is then turned, and placed on the opposite edge, and the etching water, being collected from the trough, is again poured over it in the same manner. The degree of strength, which is little more than one per cent. of acid, should be such as to produce a very slight effervescence; after the etching water has lain on the stone for a second or two its strength must vary according to the heat of the atmosphere, and the degree of fineness of the drawing. It is desirable to pass the etching water two or three times over the darkest parts of the drawing, as they require more etching than the lighter tints. Some stones, also, and different chalks, require different degrees of strength of the acid, and experience alone can guide the lithographer in his practice upon this point. Chalk drawings require weaker acid than the ink ones.

The stone is now carefully washed by pouring clean rain-water over it, and afterwards with gum-water: and, when not too wet, the roller, charged with printing-ink, is rolled over it in both directions, sideways, and from top to bottom, till the drawing takes the ink. It is then well covered over with a solution of gum-arabic in water, of about the consistency of oil. This is allowed to dry, and preserves the drawing from any alteration, as the lines cannot spread, in consequence of the pores of the stone being filled with the gum. After the etching, it is desirable to leave the stone for a day, and best not to leave it more than a week, before it is printed from. In some establishments a few proofs are taken immediately after the drawing is etched, but it is better not to do so.

The operation of the etching requires great nicety, and must be done quickly. If the drawing is etched too strongly, the fine tints disappear; if too weakly, the printing-ink mixes with the darker parts, and the drawing runs into blots. A soft stone requires weaker acid than a hard one, if they are equally pure in quality. The differences in the compositions of the stones also require differences in the strength of the etching water, so that no strict rules can be given. The effect of the etching is, first, to take away the alkali mixed with the drawing chalk, or ink, which would make the drawing liable to be affected by the water; and, secondly, to make the stone refuse more decidedly to take any grease. The gum assists in this latter process, and is quite essential to the perfect preparation of the surface of the stone.

VOL. XIII.

An experiment has lately been made to take off impressions from plants by lithographic printing. A specimen of *Sibthorpia Europæa*, which was gathered several years ago in Cornwall, was covered with lithographic ink and impressed on a stone, from which stone several impressions were afterwards taken. The experiment was not so successful as was wished, but still promised to be beneficial in leading to the means of multiplying copies of the impressions of plants, much more accurate, in some respects, than a drawing can be expected to be.

The press formerly employed in the lithographic process, was exceedingly complicated; and, like the early German presses, but little adapted to the higher branches of the art. This cumbersome apparatus has now, however, been materially simplified by Messrs. Taylor and Martineau, to whom the public have been some time indebted for an improved typographical press. Messrs. Taylor and Martineau's press is faithfully represented in plate LITHOGRAPHY, fig. 1; and its arrangement may be best understood by reference to the various parts lettered in the engraving.

The cast iron uprights *aa* form the sides of the press, and are firmly attached to the base and table beneath. The carriage *b*, with its stone *c*, slide upon the rail-way *dd*, the former being supported by small rollers, which considerably diminish the friction that might otherwise arise from the weight of a large stone. A strong handle, *e*, is attached to the roller *f*, by means of which motion is given to the carriage. The scraper, *g*, is depressed by means of a spiral placed at the extremity of the handle, *h*; and, as the scraper is only in operation upon the narrow line with which it is immediately in contact, the entire force exerted upon every part of its surface is as great as in a press requiring more than several hundred times the power. *i* represents the tympan, and the regulating screw, *k*, is employed to adjust the press to the various stones that may be required in the different branches of this art.

The number of impressions which can be taken from a chalk drawing will vary according to the fineness of the tints. A fine drawing will give 400 or 500; a strong one from 1000 to 1500.

Ink drawings and writings give considerably more than copper-plates. The finest will give 6000 or 8000, and strong lines and writings many more. Upwards of 80,000 impressions have been taken at Munich from one writing of a form for regimental returns.

LITHOMANCY, LITHOMANTIA, in antiquity, a species of divination performed with stones. Sometimes the stone called siderites was used; this they washed in spring water in the night, by candle-light; the person that consulted it was to be purified from all manner of pollution, and to have his face covered: this done, he repeated certain prayers, and placed certain characters in an appointed order; and then the stone moved of itself, and in a soft gentle murmur, or in a voice like that of a child, returned an answer.

LITHONTRIPTICK. See MEDICINE.

LITHOPHYTA, the name of Linnæus's third order of vermes. See ZOOLOGY.

LITHOSPERMUM, growell, a genus of F.

the monogynia order, and pentandria class of plants: cor. funnel-shaped, the throat perforated and naked: cal. quinquepartite. There are several species; but the only remarkable ones are these: 1. *L. arvense*, the bastard alkanet, grows in corn fields. 2. *L. officinale*, the common gromwell, grows in a dry gravelly soil. The seeds are reputed to be of service in calculous cases. Grew says that they have so much earth in their composition, that they effervesce with acids; but if this is the case it must be attributed rather to an alkaline than an earthy quality. Both are natives of Britain.

LITHOSTROTION, in natural history, a species of fossil coral, composed of a great number of long and slender columns, sometimes round, sometimes angular, jointed nicely to one another, and of a starry radiated surface at their tops. These are found in considerable quantities in the northern and western parts of this kingdom, sometimes in single, sometimes in complex specimens.

LITHOSTROTON, among the Romans, was a pavement of Mosaic work, consisting of small pieces of cut marble of different kinds and colors. The lithostrota began to be used in the time of Sylla, who made one at Præneste in the temple of Fortune. At last they were used in private houses; and were brought to such perfection, that they exhibited most lively representations of nature, with all the exactness of painting.

LITHOTOMY. See **SURGERY**.

LITHUANIA is the former name of an extensive tract of country lying between Poland and Prussia (annexed to Poland in the fourteenth century), and now forming the three Russian governments of Wilna, Grodno, and Minsk. It was divided into two parts, called Samogitia and Lithuania Proper. Lithuania Proper was formerly divided into the palatinates of Troki and Wilna. It is flat and sandy, and intersected by vast marshes and bogs, and covered with immense pine, oak, and elm forests. Here bears, wolves, and wild boars, abound; and the urus, or wild ox, is sometimes found. Immense quantities of pot-ash and pearl-ash are annually produced from these woods; and honey is collected in great abundance. In some of the bogs is found an ochre which gives forty per cent. of tolerably good iron, copper, pyrites, petrifications, yellow amber, and the remains of marine animals. The pasturage is excellent in particular districts, and the cattle of a better breed than in Russia; and buck-wheat is raised in preference to any other. The Lithuanians are a sluggish race, and their appearance is generally very squalid. Their dress is a coarse shirt, covered by a woollen cloak or drawers, and sometimes merely a sheepskin. Their shoes are made of bark, and the harness of their horses of the more flexible branches of trees.

LITIGANT, *n. s. & adj.* } Lat. *litigo*, to
LITIGATE, *v. a. & v. n.* } strive; Fr. *litigans*,
LITIGATION, *n. s.* } *litigieux*. One en-
LITIGIOUS, *adj.* } gaged in a law suit:
LITIGIOUSLY, *adv.* } judicially contest-
LITIGIOUSNESS, *n. s.* } ing: to litigate is
to urge or manage a suit: litigious, disposed to

litigation in the legal or any other sense; also (obsolete) disputable; controvertible.

In *litigious* and controverted causes, the will of God is to have them to do whatsoever the sentence of judicial and final decision shall determine.

Hooker.

Soldiers find wars, and lawyers find out still
Litigious men, who quarrels move. *Donne.*

The cast *litigant* sits not down with one cross ver-
dict, but recommences his suit. *Decay of Piety.*

And by that we shall know who are the *litigants*
that like the two sons of Rebecca strive within us.

Jeremy Taylor.

Never one clergyman had experience of both *liti-
gations*, that hath not confessed, he had rather have
three suits in Westminster Hall, than one in the
arches. *Clarendon.*

No fences parted fields, nor marks, nor bounds,
Distinguished acres of *litigious* grounds.

Dryden's Georgics.

The *litigants* tear one another to pieces for the
benefit of some third interest. *L'Estrange's Fables.*

His great application to the law had not infected
his temper with any thing positive or *litigious*.

Addison.

The appellant, after the interposition of an ap-
peal, still *litigates* in the same cause.

Ayliffe's Parergon.

Judicial acts are those writings and matters which
relate to judicial proceedings, and are sped in open
court at the instance of one or both of the parties
litigant. *Id.*

Dar'st thou still *litigate* thy desp'rate cause,

Spite of these numerous, awful witnesses,

And doubt the deposition of the skies? *Young.*

LITMUS, or **LACMUS**, in the arts, a blue pig-
ment, formed from archil. It is brought from
Holland at a cheap rate; but may be prepared
by adding quicklime and spirit of urine to the
archil, previously bruised by grinding. The
mixture having cooled, and the fluid evaporated,
becomes a mass of the consistence of a paste,
which is laid on boards to dry in square lumps.
It is only used in miniature paintings, and can-
not be well depended on, because the least ap-
proach of acid changes it instantly from blue to
red. The best litmus is very apt to change and
fly. See **ARCHIL**, and **DYING**.

LITTER, *n. s. & v. a.* Fr. *litiere*. A sedan
or portable bed; the straw bed of animals or
plants; the brood or young of one litter or bed:
and (from beds of straw apparently) to strew
things carelessly about: any number of things
carelessly strewed.

To my *litter* strait;

Weakness possesseth me.

Shakespeare. King John.

To crouch in *litter* of your stable planks.

Shakespeare.

Then was this island,

Save for the son that she did *litter* here,

A freckled whelp, hag-born, not honoured with
A human shape. *Id. Tempest.*

I do here walk before thee like a sow that hath
overwhelmed all her *litter* but one. *Shakespeare.*

He was carried on a rich chariot *litter*-wise, with
two horses at each end. *Bacon's New Atlantis.*

The whelps of bears are, at first *littering*, without
all form or fashion. *Hakewill on Providence.*

The drowsy frightened steeds,

That draw the *litter* of close-curtained sleep.

Milton.

We might conceive that dogs were created blind,
because we observe they were *littered* so with us.

Browne.

He found a stall where oxen stood,
But for his ease well *littered* was the floor.

Dryden.

Here modest matrons in soft *litters* driven
In solemn pomp appear.

Id. Æneid.

Fruitful as the sow that carried
The thirty pigs at one large *litter* farrowed.

Id. Juvenal.

A wolf came to a sow, and very kindly offered to
take care of her *litter*.

L'Estrange.

Reflect upon that numerous *litter* of strange,
senseless opinions, that crawl about the world.

South.

Take off the *litter* from your kernel beds.

Evelyn.

Strephon, who found the room was void,
Stole in, and took a strict survey
Of all the *litter* as it lay.

Swift.

They found
The room with volumes *littered* round.

Id.

The *LITTER*, *lectica*, was carried upon shafts, and was anciently esteemed the most easy and elegant kind of carriage. Du Cange derives the word from the barbarous Latin *lecteria*, straw or bedding for beasts: others from *lectus*, a bed; there being ordinarily a quilt and a pillow to a *litter* in the same manner as to a bed. Pliny calls the *litter* the traveller's chamber: it was much in use among the Romans, among whom it was carried by slaves kept for that purpose; as it still continues to be in the east, where it is called a *palanquin*. The Roman *lectica*, made to be carried by four men, was called *tetraphorum*; that by six, *hexaphorum*; and that by eight, *octaphorum*. The invention of *litters*, according to Cicero, was owing to the kings of Bithynia: in the time of Tiberius they were become very frequent at Rome, as appears from Seneca; and even slaves were carried in them, though never by more than two persons.

LITTLE, *adj.*, *n. s. & adv.* } Sax. *lytel*;
LITTELENSS, *n. s.* } Goth. *litill*, *litt*;

Swed. *lyt*, comparative *less*, superlative *least*, which see. Small in bulk, or extent of space or time; not much; not many; some: hence of small power, dignity, or importance: as a substantive, a small space, part, or affair: as an adverb, small in degree or quantity: *little-ness* is smallness (of any kind); meanness.

Nyle thou ghit drynke watir, but use a *littil* wyn
for the stomak and for thin ofte fallynge ynfrimyttes.

Wiclif. 1 Tymo. v.

The coast of Dan went out too *little* for them.

Joshua. xix.

When thou was! *little* in thine own sight, wast
thou not made the head of the tribes?

1 Sam. xv. 17.

A *little* sleep, a *little* slumber, a *little* folding of the
hands to sleep; so shall poverty come upon thee.

Proverbs.

And at the last a path of *littel* brede
I found, that gretly had not usid be,
For it forgrowin was with grass and wede,
That well unne this a wight might it se. *Chaucer.*
It is done by *little* and *little*, and with many es-
says; but all this dischargeth not the wonder.

Bacon's Natural History.

All trying, by a love of *littleness*,
To make abridgments, and to draw to less
Even that nothing which at first we were.

Donne.

Finding him *little* studious, she chose rather to en-
due him with conversative qualities of youth; as,
dancing and fencing.

Wotton.

If we find but a *little* pleasure in our life, we are
ready to dote upon it.

Bp. Hall's Contemplations.

All that is past ought to seem *little* to thee, be-
cause it is so in itself.

Taylor's Guide to Devotion.

He was a very *little* gentleman.

Clarendon.

And now in *little* space

The confines met.

Milton.

By sad experiment I know

How *little* weight my words with thee can find.

Id.

The poor sleep *little*.

Otway.

By freeing the precipitated matter from the rest by
filtration, and diligently grinding the white precipi-
tate with water, the mercury will *little* by *little* be
gathered into drops.

Boyle.

Much in *little* was writ; and all conveyed
With cautious care, for fear to be betrayed.

Dryden.

They have much of the poetry of Mæcenas, but
little of his liberality.

Id.

As if 'twere *little* from their town to chase,

I through the seas pursued their exiled race.

Id.

His son, being then very *little*, I considered only
as wax, to be moulded as one pleases.

Locke.

There are many expressions, which, carrying with
them no clear ideas, are like to remove but *little* of
my ignorance.

Id.

I leave him to reconcile these contradictions,
which may plentifully be found in him, by any one
who will but read with a *little* attention.

Id.

One would have all things *little*; hence has tried
Turkey poults, fresh from the egg, in batter fried.

King.

We may suppose a great many degrees of *littleness*
and lightness in these earthy particles, so as many
of them might float in the air.

Burnet.

The English and French, in verse, are forced to
raise their language with metaphors, by the pompous-
ness of the whole phrase, to wear off any *littleness* that
appears in the particular parts.

Addison.

I view with anger and disdain,

How *little* gives thee joy or pain:

A print, a bronze, a flower, a root.

Prior.

The angelick grandeur, by being concealed, doe
not awaken our poverty, nor mortify our *littleness* so
much, as if it was always displayed.

Collier.

Where there is too great a thinness in the fluids
subacid substances are proper, though they are
little astringent.

Arbuthnot.

These they are fitted for, and *little* else.

Cheyne.

A *little* learning is a dangerous thing;

Drink deep, or taste not the Pierian spring.

Pope.

Several clergymen, otherwise *little* fond of obscure
terms, yet in their sermons were very liberal of a
those which they find in ecclesiastical writers.

Swift.

The received definition of names should be change
as *little* as possible.

Watts's Logic.

As man was made for glory and for bliss,

All *littleness* is in approach to woe.

Young.

The great art of life is to play for much, and *little*.

Johnson.

LITTLE (William), an ancient English his-
torian, called also *Gulielmus Neuburgensis*:
born at Bridlington in Yorkshire, in 1136; as

educated in the abbey of Newborough, where he became a monk. In his advanced years, he wrote a history of England, in five books, from the Norman conquest to A.D. 1197; which, for veracity, regularity of disposition, and purity of language, is one of the most valuable productions of that period.

LITTLETON (Adam), an eminent lexicographer, descended from an ancient family in Shropshire. He was born in 1627, educated at Westminster school, and went to Oxford, a student of Christ Church, whence he was ejected, by the parliament's visitors, in 1648. Soon after he became usher of Westminster school; and, in 1648, was made second master. After the Restoration he kept a school at Chelsea, of which church he was admitted rector in 1664. In 1670 he took his degrees in divinity, being then chaplain to Charles II. In 1674 he became prebendary of Westminster, of which he was afterwards subdean. Besides the well known Latin and English Dictionary, he published several other works. He died in 1694.

LITTLETON (Edward), LL.D., a learned English divine, educated at Cambridge in 1716. In 1729 he was elected fellow of Eton College, and presented to the living of Maple Derham, Oxford. In 1730 he took his degree, and was appointed chaplain to king George I. He died in 1734; and his discourses, in 2 vols. 8vo., were printed for the benefit of his family, under the patronage of queen Caroline. His celebrated poem on a spider, and other fugitive pieces, are preserved in Dodsley's Collection.

LITTLETON, or **LYTTLETON** (Sir Thomas), judge of the common pleas, was the eldest son of Thomas Westcote, esq., of Devonshire, by Elizabeth, sole heiress of Thomas Littleton of Frankley in Worcestershire, at whose request he took the name and arms of that family. He was educated at Oxford or Cambridge; and was afterwards, by Henry VI., made steward of the court of the palace. In 1455 he was appointed king's serjeant; and, in 1466, a judge of the common pleas, under Edward IV. In 1474 he was created knight of the Bath. He died in 1481; and was buried in the cathedral of Worcester, where a marble tomb, with his statue, was erected to his memory. He was author of the *Treatise upon Tenures*, on which Sir Edward Coke wrote a comment, well known by the title of *Coke upon Littleton*.

LITTORALE, an Italian word signifying the *sea coast*, applied particularly to the Hungarian province on the coast of the Adriatic, comprising the three towns Fiume, Buccari, and Porto-Re, with their territories, on the northern coast of Dalmatia. It formerly belonged to the military district of Croatia. The emperor Joseph II. annexed it to Hungary in 1776, and gave it a civil government for the encouragement of Hungarian commerce. The district had, in 1787, 19,928 inhabitants upon 140 square miles. From 1809 to 1814, it formed part of the Illyrian provinces of France. In 1814, it was restored to the Austrian empire, and, in 1822, was re-united with the provinces of the crown of Hungary. The seat of government is at Fiume.

LITURGY. Gr. *λειτουργία*; Fr. *liturgie*. Form of prayer; devotion. See below.

LITURGY is derived from *λειτουργ*, public, and *εργον*, work; and includes all the ceremonies belonging to public worship. In a more restrained signification, liturgy is used among the Romanists to signify the mass; and, in the church of England, the book of common prayer. All who have written on liturgies agree that, in the primitive days, divine service was exceedingly simple, clogged with very few ceremonies, and consisted of but a small number of prayers; but, by degrees, they increased the number of external ceremonies, and added new prayers. Liturgies have been different in different times and countries. There are liturgies of St. Chrysostom, St. Peter, St. James, St. Basil, of the Maronites, of the Coptiæ; the Armenian, Roman, Gallican, Ambrosian, Spanish, African, and English liturgies, &c. In the early ages of the church, every bishop had a power to form a liturgy for his own diocese; and, if he kept to the analogy of faith and doctrine, all circumstances were left to his own discretion. Afterwards the whole province followed the metropolitan church, which became the general rule of the church; and this Lindwood acknowledges to be the common law of the church; intimating that the use of several services in the same province, which was the case in England, was not to be warranted but by long custom. The liturgy of the church of England was composed in 1547, and established in the second year of Edward VI. In his fifth year it was reviewed; because some things were contained in it which showed a compliance with the superstition of those times, and which were objected to by Calvin, and some learned men at home. Some alterations were made in it; the general confession and absolution were added; and the communion was made to begin with the ten commandments. The use of oil in confirmation, and extreme unction, were taken away; also prayers for souls departed. This liturgy, so reformed, was established by act of 5 and 6 Edward VI., cap. 1: abolished by queen Mary (who enacted that the service should stand as it was used in the last year of Henry VIII.); but re-established with a few alterations and additions, by 1 Eliz. cap. 2. Some farther alterations were introduced by order of king James I., in the first year of his reign; particularly in the office of private baptism, in several rubrics, &c.; with the addition of five or six new prayers and thanksgivings, and all that part of the catechism which contains the doctrine of the sacraments. The book of common prayer, thus altered, remained in force from the first year of king James I. to the fourteenth of Charles II. The last review of the liturgy was in 1661; and the last act of uniformity, enjoining the observance of it, is 13 and 14 Car. II., cap. 4. Many applications have been since made for a review, but hitherto without success.

LITUUS, among the Romans, was the staff made use of by the augurs in quatering the heavens. It bore a great resemblance to the crosier of a bishop, but was shorter. It was crooked at one end, and thickest in the curved part, according to A. Gellius. We frequently

meet with a representation of it upon medals, amongst other pontifical instruments. It was called *Lituus Quirinalis*, from *Quirinus*, a name of *Romulus*, who was skilled in all the mysteries of augury.

LITÆUS was also an instrument of music in use in the Roman army. It was straight, excepting that it had a little bending at the upper end like the *lituus* or sacred staff of the augurs; and from the similitude it derived its name. The *lituus*, as an instrument of martial music, was of a middle kind betwixt the cornu and the tuba.

LIVADIA, a province of European Turkey, the ancient *Achaia* and *Hellas*, or Greek Proper; bounded on the north by *Epirus* and *Thessaly*, from which it is separated by *Mount Oeta*, now *Banina*, and by the *Euripus*, now the strait of *Negropont*; on the east by the *Archipelago*; on the south by the gulf of *Engia*, the isthmus of *Corinth*, and the gulf of *Lepanto*; and on the west by the *Ionian Sea* and part of *Epirus*. Its extent is about 180 miles from north-west to south-east: its greatest breadth not above forty. It is in general mountainous, but pleasant and fruitful. The principal mountains are, the *Oeta* in *Bœotia*, where is the famous pass of *Thermopylæ*, not above twenty-five feet broad; and *Parnassus*, *Helicon*, and *Cytheron* in *Phocis*, celebrated by the poets. The rivers of most note are, the *Sionapros*, the ancient *Achelous*, the *Cephisus*, the *Ismenus*, and the *Asopus*. The province is at present divided into *Livadia* Proper, *Stramulippa*, and the duchy of *Athens*. The principal places are, *Lepanto*, anciently *Naupactus*; *Livadia*, anciently *Lebadia*; *Athens*, or *Setines*; *Thebes*, or *Stibes*: *Lepsina*, anciently *Eleusis*; *Castri*, formerly *Delphi*; and *Megara*. See *GREECE*.

LIVADIA, the capital of the above province, is a large and populous place, seated on the gulf of *Lepanto*, about fifty miles from *Athens*. It has a considerable trade in woollen stuffs and rice. Near this place is the cave of *Trophonius*. It contains about 10,000 inhabitants.

LIVE, *v. n. & adj.* } Sax. *līpan*; Swed. *lefva*; Goth. *liva*; Dan. *leve*; Belg. *leven*. To exist; be in animal existence; vegetate: hence to continue in life; pass life; converse, or cohabit (taking with); feed; live in happiness; remain undestroyed or unextinguished; be exempt from death: live, as an adjective, is quick; active: hence burning: *liveless* written by *Shakspeare* for *lifeless*: *liveliness*, means of living, a corruption of *livelode*, or lead, i.e. the manner of leading life. See *LODE*. *Livelong* is tedious; long in passage; lasting: *lively*, according to, or representing, life; active; strong; energetic; brisk; gay: *briskly*; *vigorously*; with near resemblance to life: *liver*, one who exists, or who lives in some particular manner: *living*, as an adjective, is synonymous with *lively*; as a substantive it signifies power or means of continuing life; main-

tenance; benefice of a clergyman; all who live: *livingly* in the state of the living.

In him was *lyf*, and the *lyf* was the light of men. *Wiclif. Jun. i.*

If one man's ox hurt another that he die, they shall sell the *live* ox, and divide the money. *Exodus.*
My statutes and judgments, if a man do, he shall *live* in them. *Lev. xviii. 5.*

The *living* know that they shall die. *Eccles.*

All they did cast in of their abundance; but she of her want did cast in all that she had, even all her *living*. *Mark.*

They which minister about holy things, *live* of the things of the temple. *1 Cor. ix. 13*

Tell me, madame, I you beseech

For sith the first of my *living*

Was I so fereful of nothing

As I am now to here you speke. *Chaucer's Dreame.*

By whiche the lesse whyle I looke to *lyue* with you, the more depelye am I moued to care in what case I leaue you, for such as I leaue you, suche bee my children lyke to fynde you. *Sir G. Moore.*

His weary foe into that *living* well,

Gan high aduance his broad discoloured brest

Above his wonted pitch, with countenance fell,

And clapt his yron wings, as victor he did dwell. *Spenser. Faerie Queene.*

A most notorious thief; *lived* all his life-time of spoils and robberies. *Spenser.*

If any loose *liver* have any goods of his own, the sheriff is to seize thereupon. *Id. on Ireland.*

Some of our ministers having the *livings* of the country offered unto them, without pains, will, neither for any love of God, nor for all the good they may do, by winning souls to God, be draw forth from their warm nests. *Spenser.*

She gave like blessing to each creature,

As well of worldly *livelode* as of live,

That there might be no difference nor strife. *Hubbard.*

For ourselves we may a *living* make. *Id.*

My life thou shalt command, but not my shame:

The one my duty owes; but my fair name,

Despite of death, that *lives* upon my grave,

To dark dishonour's use thou shalt not have *Shakspeare.*

Our high-placed *Macbeth*

Shall *live* the lease of nature, and pay his breath

To time and mortal custom. *Id.*

The shepherd swains shall dance and sing,

For they delight each May morning.

If these delights thy mind may move,

Then *live* with me and be my love. *Id.*

The obscured bird clamoured the *livelong* night. *Id.*

Then may I set the world on wheels, when she can spin for her *living*. *Id.*

Is't night's predominance, or the day's shame,

That darkness does the face of earth entomb,

When *living* day should kiss it? *Id. Macbeth.*

Men's evil manners *live* in brass, their virtues

We write in water. *Id. Henry VIII.*

Description cannot suit itself in words,

To demonstrate the life of such a battle,

In life so *liveless* as it shews itself. *Id. Henry V.*

Living creatures have voluntary motion, which plants have not. *Bacon's Natural History.*

Dr. Parker, in his sermon before them, touched them so near for their *living*, that they went near to touch him for his life. *Hayward.*

They brought their men to the slough, who discharging *lively* almost close to the face of the enemy, did much amaze them *Id.*

So short is life, that every peasant strives,
In a farm-house or field, to have three *lives*.

Donne.

None but our last enemy comes once for all ; and
I know not, if that : for even in *living* we die daily.

Bp. Hall's Contemplations.

The end of his descent was to gather a church of
holy christian *livers* over the whole world.

Hammond's Fundamentals.

The faithful minister *lives* sermons. *Fuller.*

Isaac and his wife, now dig for your life,

Or shortly you'll dig for your *living*. *Denham.*

That rebellion drove the lady from thence, to find
a *livelihood* out of her own estate. *Clarendon.*

Young and old come forth to play

On a sun-shine holiday,

'Till the *livelong* day-light fail. *Milton.*

But wherefore comes old Manoa in such haste,
With youthful steps ? much *livelier* than ere while
He seems ; supposing here to find his son,
Or of him bringing to us some glad news ? *Id.*

Now three and thirty rolling years are fled

Since I began, nor yet begin to *live*. *Browne.*

In vain do they scruple to approach the dead, who
livingly are cadaverous, or fear any outward pollution,
whose temper pollutes themselves.

Id. Vulgar Errors.

The Arcadians fought as in an unknown place,
having no succour but in their hands ; the Helots, as
in their own place, fighting for their *livings*, wives,
and children. *Sidney.*

Some so like to thorns and nettles *live*

That none for them can, when they perish, grieve.

Waller.

A louder sound was produced by the impetuous
eruptions of the halituous flames of the saltpetre upon
casting of a *live* coal upon it. *Boyle.*

The rays of wit gild wheresoe'er they strike,

But are not, therefore, fit for all alike ;

They charm the *lively*, but the grave offend,

And raise a foe as often as a friend ;

Like the resistless beams of blazing light,

That cheer the strong and pain the weakly sight.

Stillingfleet.

The number of soldiers can never be great in pro-
portion to that of people, no more than of those that
are idle in a country, to that of those who *live* by la-
bour. *Temple.*

Pity and he are one ;

So merciful a king did never *live*,

Loth to revenge, and easy to forgive. *Dryden.*

To save the *living*, and revenge the dead,

Against one warrior's arms all Troy they led. *Id.*

Mark how the shifting winds from west arise,

And what collected night involves the skies !

Nor can our shaken vessels *live* at sea,

Much less against the tempest force their way. *Id.*

In a spacious cave of *living* stone,

The tyrant Æolus, from his airy throne,

With power imperial curbs the struggling winds.

Id.

Pure oil and incense on the fire they throw ;

These gifts the greedy flames to dust decour,

Then on the *living* coals red wine they pour. *Id.*

That *liveliness* which the freedom of the pencil
makes appear, may seem the *living* hand of nature.

Id. Dufresnoy.

Since a true knowledge of nature gives us pleasure,
a *lively* imitation of it in poetry, or painting, must
produce a much greater. *Id.*

That part of poetry must needs be best, which
describes most *lively* our actions and passions, our
virtues and our vices. *Dryden.*

There is no *living* without trusting some body or
other, in some cases. *L'Estrange.*

He brings disgrace upon his character, to submit
to the picking up of a *livelihood* in that strolling way
of canting and begging. *Id.*

Extravagant young fellows, that have *liveliness* and
spirit, come sometimes to be set right, and so make
able and great men ; but tame and low spirits very
seldom attain to any thing. *Locke.*

The way to *live* long must be, to use our bodies so
as is most agreeable to the rules of temperance.

Ray on the Creation.

It was a miraculous providence that could make a
vessel, so ill-manned, *live* upon sea ; that kept it from
being dashed against the hills, or overwhelmed in the
deeps. *Burnet.*

It is their profession and *livelihood* to get their *liv-*
ing by practices for which they deserve to forfeit their
lives. *South.*

His faith must be not only *living*, but *lively* too ;
it must be brightened and stirred up by a particular
exercise of those virtues specifically requisite to a due
performance of this duty. *Id.*

Most of the trades, professions, and ways of *living*
among mankind, take their original either from the
love of pleasure, or the fear of want. *Addison.*

When men of rank and figure pass away their *lives*
in criminal pursuits and practices, they render them-
selves more vile and despicable than any innocent
man can be, whatever low station his fortune and
birth have placed him in. *Id.*

If we are firmly resolved to *live up* to the dictates
of reason, without any regard to wealth and reputa-
tion, we may go through life with steadiness and
pleasure. *Id.*

They have been as often banished out of most other
places ; which must very much disperse a people, and
oblige them to seek a *livelihood* where they can find it.

Id. Spectator.

Be thy affections undisturbed and clear,

Guided to what may great or good appear,

And try if life be worth the *liver's* care. *Prior.*

The colours of the prism are manifestly more full,
intense, and *lively*, than those of natural bodies.

Newton's Opticks.

Imprint upon their minds, by proper arguments
and reflections, a *lively* persuasion of the certainty of
a future state. *Atterbury.*

Here are the wants of children, of distracted per-
sons, of sturdy wandering beggars and loose disor-
derly *livers*, at one view represented. *Id.*

A late prelate, of a remarkable zeal for the church,
were religions to be tried by *lives*, would have *lived*
down the pope, and the whole consistory. *Id.*

Those animals that *live* upon other animals have
their flesh more alkaliescent than those that *live* upon
vegetables. *Arbuthnot.*

The parson of the parish preaching against adul-
tery, Mrs. Bull told her husband that they would
join to have him turned out of his *living* for using
personal reflections. *Id.*

The tomb with manly arms and trophies grace

There high in air, memorial of my name,

Fix the smooth oar, and bid me *live* to fame.

Pope

Formed by thy converse, happily to steer

From grave to gay from *lively* to severe. *Id.*

How could she sit the *livelong* day,

Yet never ask us once to play ? *Swift.*

Sounds which address the ear are lost and won
In one short hour ; but that which strikes the eye
Lives long upon the mind ; the faithful sight
Engraves the knowledge with a beam of light.

Watts.

Live while you *live*, the Epicure would say

And snatch the pleasures of the present day ;

LIVERPOOL.

*Live while you live, the sacred preacher cries,
And give to God each moment as it flies :
Lord, in my views let both united be,
I live to pleasure when I live to thee. Doddridge.*
We are of Christ ; our concern is, to honour that
superior denomination, by living up to it. *Mason.*
When Love Divine, with brooding wings unfurled,
Called from the rude abyss the living world.

Darwin.

They only have lived long who have lived virtuously.
Sheridan.

She was not violently *lively*, but
Stole on your spirits like a May-day breaking ;
Her eyes were not too sparkling, yet, half-shut,
They put beholders in a tender taking. *Byron.*

LIV'ER, *n. s.* } Sax. *lifer* ; Swed. *lefver* ;
LIVERGROWN. } Dan. *lever* ; Teut. *liber*, à *li-*
ven, to live.—*Minshew.* One of the most im-
portant of the entrails, of a dark red color : liver-
grown is having too great a liver.

And the caul above the liver—it shall he take
away. *Lev. iii. 4.*

With mirth and laughter let old wrinkles come ;
And let my liver rather heat with wine,
Than my heart cool with mortifying groans.

Shakespeare.

I enquired what other casualties were most like the
rickets, and found that *livergrown* was nearest.

Graunt.

The uppermost stratum is of gravel ; then clay of
various colours, purple, blue, red, *liver* colour.

Woodward.

LIVER, in anatomy. See ANATOMY, Index. Plato, and others of the ancients, fix the prin-
ciple of love in the liver ; whence the Latin
proverb, Cogit amare jecur : and in this sense
Horace frequently uses the word, as when he
says, Si torrere jecur queris idoneum. The
Greeks, from its concave figure, called it *ηπαρ*,
vaulted or suspended ; the Latins, jecur, q. d.
juxta cor, as being near the heart. The French
call it foye, from foyer, focus, a fire-place ;
agreeably to the doctrine of the ancients, who
believed the blood to be boiled and prepared in
it. Erasistratus, at first, called it parenchyma,
i. e. effusion or mass of blood ; and Hippocrates,
by way of eminence, frequently calls it the hy-
pochondrium.

LIVERPOOL, a borough and corporate town,
and the second port in Great Britain, is in 53°
24' 40" of N. lat., and 2° 58' 25" W. long., cal-
culated from St. Paul's church in Liverpool. It
is situate in the county of Lancaster, and on the
river Mersey ; and although it is not easy of en-
trance, on account of sand-banks at the mouth of
the Mersey, it is the most accessible port of the
west coast of England.

Liverpool was first noticed for its trade with
Ireland. Leland, who wrote in the reign of Henry
VIII., says of Liverpool, that 'Irish merchants
cum much thither as to a good haven ;' and
Camden, in his Britannia published in 1586,
says, 'the Mersey spreading, and presently con-
tracting its stream from Warrington, falls into the
ocean with a wide channel, very convenient for
trade, where opens to view Litherpoole com-
monly called Lirpoole, from a water extending
like a pool, according to the common opinion,
where is the most convenient and most frequented
passage to Ireland.' At an early period, too

the conveniency of the port of Liverpool as a
passage to the Isle of Man was sufficiently esti-
mated by the Stanley family ; and the trade to
Ireland and the Isle of Man, which commenced
at so early a period, has never been lost, but has
increased with their increasing wealth. Liver-
pool enjoys also a great coasting trade with
Wales, Bristol, London, the English maritime
corn counties, and with Scotland and Cumber-
land. In 1752 Liverpool employed only 122
vessels in the coasting trade : in 1818 2960
vessels were entered outwards as coasters at the
Liverpool custom-house : in 1823 3580 vessels
were reported inwards as coasters. Since which
time the coasting trade of Liverpool has prodig-
iously increased by the number of steam vessels
constantly employed in it.

As to the inland trade, the manufacturing towns
of Manchester, Bolton, Blackburn, Wigan, Pres-
ton, Rochdale, Oldham, Ashton-Underlyne,
Stockpool, Macclesfield, and Congleton, are all
within fifty miles of Liverpool, and have almost
all communication with it by water. By water
conveyance too the more distant towns of Hud-
dersfield, Halifax, and Leeds, have constant com-
mercial intercourse with Liverpool. 'A rapid
communication also subsists between Liverpool,
Birmingham and Sheffield ; and great quantities
of hardware and polished goods, the manufactures
of these towns, are in the constant course of
transit to Liverpool. At the distance of about
fifteen to twenty miles from Liverpool is an inex-
haustible supply of excellent coal, which is
brought down by canal. The river Weaver,
which is navigable from Northwich to the Mer-
sey, furnishes an easy conveyance to Liverpool
for the produce of the salt works of Northwich
and Winsford. Liverpool has communication
by water with Staffordshire, and draws from that
county immense stores of iron and earthenware.
At St. Helen's and Warrington, the former within
twelve and the latter nineteen miles from Liver-
pool, are most extensive manufactures for plate
glass and glass bottles. The amount of the com-
mercial dealings between Liverpool and the in-
land district is beyond all computation. By a
railway, now laying down between Liverpool and
Manchester, the communication with the large
manufactures will be more direct and facile, and
an increase of traffic will necessary result from it.

In respect to its foreign trade, Liverpool is the
peculiar port for vessels belonging to the United
States ; and, by lines of packet ships sailing be-
tween Liverpool and several of the principal
ports in the United States on stated days and
with the utmost punctuality, the most rapid
communication is kept up between the two coun-
tries. Most of the timber vessels from North
America import their cargoes into Liverpool.
The commerce of Liverpool with the infant states
of South America is also immense ; and since
the opening of the East India trade Liver-
pool has entered spiritedly into it, and now
maintains a regular and advantageous commerce
with it. Regular trading vessels are also estab-
lished between Liverpool and New South Wales.
In the West India trade Liverpool has now far
outstripped Bristol. It has still some trade with
Africa ; but no longer of the degrading and dis-

gusting character for which it was once so memorable. It has considerable trade too with Russia and all the European ports; in short Liverpool participates in all foreign unmonopolized commerce, except the Greenland trade, which it has abandoned for the last few years.

Importation into London of grain, &c., from the 1st of January to the 1st of December 1827.						Importation into Liverpool during the same period.			
	Qty.	Ireland.	Coastwise.	Foreign parts.	America.	Ireland.	Isle of Man and Coastwise.	Europe.	America.
Wheat	qrs.	2,818	214,894	96,850		184,332	45,957	79,737	23,654
Oats	qrs.	138,410	126,652	889,123		399,435	13,779	50,658	375
Barley	qrs.	400	122,830	96,561		10,119	27,185	30,274	
Rye	qrs.		495	5,523		209	1,363	8,274	
Beans	qrs.	25	41,904	53,352		3,591	3,292	25,321	100
Peas	qrs.		36,077	9,767		981	4,012	2,123	953
Malt	qrs.		192,079			393	52,015		
Meal	loads.					48,157	906		
Flour	sacks.	100	473,094	1,145 bar.	3365	79,323	7,957	530	42,257
Beef	{ Tierces.	14,044				5,492			
	{ Barrels.	1,091				894			
Pork	{ Tierces.	11,862							
	{ Barrels.	14,761				14,764			
Butter	{ ½ bar.					2,417			
	{ Firkins.	312,201				268,272			
	{ ½ firkins.	1,555				16,457			
	{ Casks.			258,248				165	

A statement is annually made by the Liverpool timber brokers of the quantity of timber imported into Liverpool during the preceding year. Their calculation is to each 1st of February, and the following is the table of imports from the 1st of February 1826 to the 1st of February 1827.

Pine (British America), cubic feet	4,168,000
Quebec deals, standard	1569
Quebec oak, cubic feet	290,400
Quebec elm and ash	92,000
Quebec staves	668
Pine planks	2,200,000
Hardwood, cubic feet	290,000
Lathwood, fathom	1,529
Timber, Dantzic, Munich and Stettin, cubic feet	764,000
— Riga (Baltic)	51,000
Deals, standard	3400
Wainscot logs { whole	610
{ half	162
Deck planks, pieces	5200
Staves pipe, M	42
Lathwood, fathom	640
Cedar Havannah logs	1888
Pencil cubic feet	3000
Pitch pine	26,700
African oak	124,000

The tides of the Mersey vary from twenty to thirty feet in spring tides, and from ten to fifteen feet at neap tides. Vessels exceeding 800 tons in burthen have come into the port at the height of spring tides; but the Liverpool merchants seldom build vessels of greater burthen than 400 to 500 tons, from the danger of their being neaped, and on account of the delay which always attends the loading and unloading of large vessels.

Few maritime towns possess accommodations for ships at all comparable to Liverpool; for it has now six docks, viz. the Dry dock, the Salt-

house dock, the King's dock, the Queen's dock, the George's dock, and the Prince's dock, which with their basins occupy about forty-five acres of land. These docks communicate with the river, and vessels have an easy entrance into them from it, at flood tide. The old dock, which was made early in the last century, was closed at the beginning of the present year (1827), an arrangement having taken place between the government and the corporation of Liverpool for the erection on its site of a custom-house and other government buildings. But the present dock-room, extensive as it is, is insufficient for the commerce of the port, and a large dock to the northward is now constructing, and another to the southward will be commenced in the course of next year: by which the extent of dock-room will be increased to seventy-five acres. Steam vessels have greatly increased in number during the last four years, and a dock for their accommodation exclusively is now in rapid progress. Communicating with the present docks are several graving docks, as they are called, where vessels undergo repair. They are taken in at tide time and the gates are then closed, and the water is let out by flood-gates as the tide ebbs; the tide is afterwards wholly excluded, so that vessels in these docks can be thoroughly exarined from the keel upwards. The docks are vested by act of parliament in trustees consisting of some members of the Liverpool corporation, and some merchants not of the corporation. Perhaps in the abstract it is objectionable that members of the corporation should be dock trustees also, as there is occasionally a collision of interest between the corporation and dock estates: whether the system has been practically mischievous or not we will not stop to enquire. At present the dock trustees are vigilantly watched by the public, and they seem to have set on foot a judicious system

for the management of their large revenue. The dock duties, for the year ending June 1827, amounted to £145,000.

Besides the docks above enumerated the trustees of the duke of Bridgewater, and the Manchester old quay company, have docks at Liverpool for the convenience of the flats and barges plying on their respective navigations. And, for the examination and repair of vessels, a patent slip has lately been erected by a private individual at Wallasey Pool on the Cheshire side of the Mersey. The advantage of the patent slip over graving docks is said to be that it is made at a comparatively trifling expense, and that vessels can be better examined there, as no part of the day light is kept from the bottoms of the vessels, whilst in graving docks a great deal of light is obstructed by the sides of the graving docks, which are narrow, and which could not be made wider on account of the necessity of shoring up vessels previous to repair.

A telegraphic communication between Liverpool and Holyhead, by means of stations at intervals along the coast of North Wales has just been effected by lieutenant Watson, R. N., and is now in operation. Its objects are to give instant tidings of the arrival of ships off Holyhead, the variations of the wind there, and damage to shipping on the Welsh coast.

The limits of the parish and town are co-extensive, containing 2300 yards from east to west, and 4420 yards from north to south, and 10,400 yards in circumference, forming an area of 2202 acres, nearly one-half of which belongs to the corporation of Liverpool, and the rest to private individuals.

Liverpool sends two members to parliament: it is a corporation by charter, with a common council consisting of forty-one persons, from among whom a mayor and two bailiffs are annually chosen by the burgesses on St. Luke's day. Towards the end of the last century many trials at law were had between the burgesses and the common council, upon the construction of the charter, i.e. as to the power of the common council to make by-laws without the sanction of the burgesses in common hall, and as to their power to fill up vacancies occurring in the council. But these trials, though in favor of the burgesses, did not effect any alteration in the system; and so long as the council shall consist, as it now does, of gentlemen of intelligence, wealth, and integrity, and the revenue of the corporation estate shall be expended in improving and embellishing the town, and publicity be given to their proceedings in council, no other mode of election of common council-men would be more beneficial to the town. The income of the corporation estate, for the year ending October 1827, amounted to £88,980. There is a court for the trial of civil causes arising within the borough, at which the mayor and bailiffs and recorder preside; but the process of attachment against the goods of a debtor does not prevail here as in London and Bristol.

The population of Liverpool has increased since the commencement of the last century, at the following prodigious ratio:—

In 1700 it was	5145
1750 .	18,400
1801 .	77,653
1811 .	94,376
1821 .	118,972

But the census of 1821 does not contain the population of Harrington, Edgehill, Lowhill, Everton, and Kirkdale, townships immediately contiguous to it, and which are chiefly inhabited by persons having some daily pursuit in Liverpool. These contained, in 1821, 22,515 persons; and to them should be added almost 9000 sea-faring men belonging to the port, and of whom no return is made. These would form an aggregate of 150,000 persons, as the population of Liverpool and its suburbs in 1821; and the population has increased since that census.

In ship-building and repairing, in cordage and sail-making, a great many hands are employed. Here are also extensive brass and iron foundries; at the latter of which boilers, and all the necessary apparatus for steam vessels, are executed. Brewing, distilling, soap-boiling, and sugar-refining, are also carried on to a great extent. There are a great many windmills and steam corn-mills in the town and neighbourhood of Liverpool, and much corn is ground previous to its being sent into the manufacturing districts. The windmills are now generally upon a new construction, the principle of which is that by the action of a fan or pilot-sail, which varies with any change of wind, the mill-sails are always presented to the wind, and much watching, manual labor, and delay, are saved by it. Mordant and alkali, and other chemical works, connected with bleaching and dyeing, are increasing here rapidly. Tanning is carried on to considerable extent in Liverpool and the neighbourhood, but the interruption of commercial intercourse between this country and Buenos Ayres, in which Liverpool is most materially interested, fetters the operations of the Liverpool tanners. A steam-mill, on a very ingenious construction, for the separation of rice from the husk (or paddy, as it is called), has recently been erected in Liverpool. There is an immense bed of good clay in Liverpool, and great quantities of bricks are annually made here both for home consumption and for shipment abroad. They are all made by hand.

Liverpool can boast of many specimens of architectural taste. The town-hall and the exchange buildings probably rank first. The lyceum, the Wellington rooms, the infirmary, and the corn exchange, are beautiful structures, though certainly they are of different degrees of merit. The Saint John's market, which was erected by the corporation about five years ago, under the direction of their architect Mr. John Foster, jun., at an expense of £35,000, deserves a more detailed notice had we space for it. It is under excellent regulations, and the rents vary from £18 a year, (which is the price for the best shops), to 12s. a year, the rent for a bench compartment. Another roofed market on a similar plan, but smaller scale, has been erected near St. James's Church, from which it takes the name

of St. James's Market, and another is intended to be erected to the north of the town.

There are about twenty churches in Liverpool belonging to the establishment. These in general do not display much architectural beauty; but the church attached to the school for the blind, St. George's, St. Michael's and Christ's Church, are exceptions; and St. Luke's Church, at the top of Bold Street as a specimen of pure Gothic, when finished, will be scarcely exceeded in the kingdom. It is built by the corporation, from designs of their architect Mr. John Foster. The chapels belonging to the various denominations of dissenters greatly exceed in number the churches belonging to the establishment. There are five Roman Catholic chapels, a meeting-house for Quakers, and a Jews' synagogue. The churches and all the dissenting chapels have schools attached to them, and great facilities are afforded for the education of the children of the poor.

The charitable institutions are too numerous to detail. We shall content ourselves with naming the schools for the instruction of the indigent blind in music and several useful manufactures. It was established in 1791, and has perhaps never been surpassed for benevolence of design, and success as a charity. It is the parent of the London and other similar establishments.

A public cemetery, originating with the dissenters, was made a few years ago in Brunswick Road, by the contributions of share-holders. The building has a handsome stone front, the ground is well laid out; and the arrangements being such as to insure decent interment, and to prevent exhumation; and it has become a common repository for the dead. A cemetery, attached to the establishment, now constructing in the form of catacombs, on a very large scale at the Stone Delf, at the back of the St. James's Walk, is now rendered interesting by a monument to Mr. Huskinson, raised at the public expense.

Liverpool is deficient in public promenades, having only the St. James's walk and the marine parade, near the prince's dock: the latter, however, is beautiful, being of the extent of 700 yards along the side of the Mersey.

The Athenæum is an institution combining commercial and political information with literature, as it possesses a news-room and a most valuable library. The lyceum is a similar institution, but the books in the latter circulate amongst the proprietors.

The botanic garden, under the skill of its curator Mr. John Sheppard, has acquired both in England and abroad considerable reputation for its rare and valuable collection of native and foreign plants. The royal institution, which was opened in November 1817, has a charter of incorporation, and its object is the promotion of literature, science, and the arts, by academical schools, public lectures, the encouragement of societies, which may associate for similar objects; the collection of books, specimens of art, natural history, &c.; by promoting a laboratory and philosophical apparatus; and by associations of the proprietors. The new Zoological Gardens are likely to possess a great variety of specimens,

from the facility which foreign intercourse affords to Liverpool.

In the year 1826 an important undertaking was commenced by the spirited merchants of this commercial town, namely, a rail-road communication from Liverpool to Manchester, a distance of thirty-one miles. The object of this costly work is not merely the conveyance of passengers, but the transfer of goods of every description, such as had previously been transported by canal or by waggon. The expense of completing the entire line, including sixty-three bridges, and the road across Chat Moss, which in itself was an undertaking of the most expensive kind, exceeded one million sterling; and the interesting ceremony of opening the railway took place on the 15th of September, 1830, in presence of the duke of Wellington, and many of the nobility and gentry of the adjoining counties. The rejoicings and congratulations of this memorable day are clouded by the recollection of a melancholy event, the death of Mr. Huskinson, the representative of Liverpool, who was crushed beneath the wheels of one of the locomotive engines, and died shortly after. The quantity of goods now annually conveyed by this mode of transport amounts to 40,000 tons, and of coals an equal weight. The number of passengers carried during the first two years after its construction, exceeded 200,000, but as many of those visited rather from curiosity than business, a diminution in the number may be reasonably expected.

LIVER-WORT, in botany. See LICHEN and MARCHANTIA.

LIVERY, *n. s.* } Fr. *livrer, livrée*; Ital. LIVERMAN, } Span. and Port. *lerrea, librea*, ex Lat. *libero*. A giving or taking legal possession; return from wardship; food, or clothes, given to servants, or followers, or at a certain rate; hence any particular or characteristic dress: liveryman, a footman; also in London, a freeman of a particular rank in some company.

I think it is our way,
If we will keep in favour with the king,
To be her men and wear her livery. *Shakspeare.*

On others Interest her gay livery flings,
Interest that waves on party-coloured wings;
Turned to the sun she casts a thousand dyes:
And as she turns the colours fall or rise. *Dunciad.*

Because no livery of seisin is necessary to a lease for years, such lease is not said to be seized, or to have true legal seisin of the lands. *Tomlin.*

My mind for weeds your virtue's livery wears. *Sidney.*

The witnesses made oath, that they had heard some of the liverymen frequently railing at their mistresses. *Arbutnot.*

LIVERY, in dress and equipage, a certain color and form of dress, by which noblemen and gentlemen distinguish their servants. Liveries are usually taken from fancy, and continued in families by succession. The ancient cavaliers, at their tournaments, distinguished themselves by wearing the liveries of their mistresses: thus

people of quality make their domestics wear their livery. The Romish church has also her several colors and liveries; white for confessors and virgins, and in times of rejoicing; black for the dead; red for the apostles and martyrs; blue or violet for the penitents; and green in times of hope. Liveries were abolished in France by the Constituent National Assembly, as badges of servitude, inconsistent with their system of equality, but have of course been since resumed.

THE LIVERYMEN OF LONDON are a number of men chosen from among the freemen of each company. Out of this body the common-council, sheriff, and other superior officers for the government of the city are elected; and they alone have the privilege of giving their votes for members of parliament for the city. See *LONDON*.

LIVIA, the second wife of the emperor Augustus, and mother of Tiberius, a woman of great beauty and ability, but of a very loose and depraved character. She was the daughter of L. Drusus Calidianus, and the wife of Tiberius Claudius Nero, one of Antony's adherents; by whom she was pregnant, when Augustus saw her, and married her; for which purpose he divorced his wife Scribonia. To ensure the succession to her son, she secretly procured the death of Augustus's grand-children and nearest relations. See *ROME*. She died A. D. 29, aged eighty-six.

LIVID, *adj.* } Fr. *livide*; Lat. *lividus*.

LIVIDITY, *n.s.* } Discolored, as by a blow; purple-colored.

It was a pestilent fever, not seated in the veins or humours, for that there followed no carbuncles, no purple or *livid* spots, the mass of the blood not being tainted. *Bacon*.

They beat their breasts with many a bruising blow,

Till they turned *livid*, and corrupt the snow.

Dryden.

The signs of a tendency to such a state, are darkness or *lividity* of the countenance. *Arbuthnot*.

Days lay she in that state, unchanged, though chill.

With nothing *livid*, still her lips were red;

She had no pulse, but death seemed absent still;

No hideous sign proclaimed her surely dead.

Byron.

LIVINGSTON (William), a statesman and author of the United States of America, was born at New York, in 1723. During the contest for independence he employed himself in defending his country's cause; and after having filled various important situations in his native city, became a member of congress for New Jersey: on the establishment of the constitution, he was made governor of the state. He died at Elizabeth-town in 1790, having held the government twelve years. He was the author of *Philosophical Solitude*, a poem; *A Review of the Military Operations in North America*, from 1753 to 1758; and several other works.

LIVIVS (Titus), the celebrated Roman historian, was born at Patavium. Few particulars of his life have been handed down to us. We first hear of him at Rome, where he acquired

the notice and favor of Augustus. He had previously written Dialogues, historical and philosophical, and some books on philosophy. It is probable that he began his History as soon as he was settled at Rome. He used to read parts of it, while he was composing it, to Mæcenas and Augustus; and the latter appointed him to superintend the education of his grandson Claudius, afterwards emperor. After the death of Augustus, Livy returned to the place of his birth, where he was received with honor and respect; and where he died in the fourth year of Tiberius's reign, aged above seventy. Some say he died on the same day with Ovid; it is certain he died the same year. Scarce any man was ever more honored, in life or after his death, than this historian. A monument was erected to him in the temple of Juno, where was afterwards founded the monastery of St. Justina; and where, in 1413, was discovered the following epitaph:—*'Ossa Titi Livii Patavini, omnium mortalium judicio digni, cujus prope invicto calamo invicti populi Romani res gestæ conscriberentur.'*—The bones of Titus Livius of Patavium, a man worthy to be approved by all mankind, by whose almost invincible pen the acts and exploits of the invincible Romans were written.' These bones are said to be still preserved with high veneration by the Paduans. In 1451 Alphonsus, king of Arragon, sent his ambassador Anthony Panormita, to desire of the citizens of Padua the bone of that arm with which this their famous countryman had written his history: and, obtaining it, caused it to be conveyed to Naples with the greatest ceremony as a most invaluable relic. He is said to have recovered from an ill state of health by the pleasure he found in reading this history: and therefore, out of gratitude, took this method of doing honor to the memory of the writer. Panormita also, who was a native of Palermo in Sicily, and one of the ablest men of the fifteenth century, sold an estate to purchase this work. The history of Livy is transmitted down to us exceedingly mutilated and imperfect. Its books were originally 142, of which only thirty-five are extant. The epitomes of it, from which we learn their number, all remain, except those of the 136th and 137th books. Livy's books have been divided into decades, which some will have to have been done by Livy himself, because there is a preface to every decade; while others suppose it to be a modern contrivance, as nothing about it is mentioned by the ancients. The first decade is extant, and treats of the affairs of 460 years. The second is lost; the years of which are seventy-five. The third is extant, and contains the second Punic war, including eighteen years. It is reckoned the most excellent part of the history. The fourth contains the Macedonian and Asiatic wars, which take up the space of about twenty-three years. The first five books of the fifth decade, were found at Worms by Simon Grynaeus, in 1431, but are very defective; and the remainder, which reaches to the death of Drusus in Germany in 746, together with the second decade, are supplied by Freinshemius. The encomiums bestowed upon Livy, by both ancients and moderns, are great and numerous. But his probity candor, and impartial-

lity, have distinguished him above all historians; for neither complaisance to the times, nor his particular connexion with the emperor, could restrain him from speaking so well of Pompey, that Augustus called him a Pompeian. Livy has been censured, and perhaps with justice, for being too credulous, and loading his history with superstitious tales. But though he mentions that milk and blood were rained from heaven, or that an ox spoke, or a woman changed her sex; yet he candidly confesses, that he recorded only what made an indelible impression upon the minds of a credulous age. Quintilian says, that he had a sor, to whom he addressed some excellent precepts in rhetoric. An ancient inscription speaks also of one of his daughters, named Livia Quarta; the same, perhaps, who espoused an orator of the name of Lucius Magius, whom Seneca mentions; and observes, that the applauses he usually received from the public in his harangues, were not so much on his own account, as for the sake of his father-in-law. Livy's history has been often published with and without the supplement. The best editions are that of Gronovius, cum notis variorum et suis, Lugd. Bat. 1679, 3 vols. 8vo.; that of Le Clerc, at Amsterdam, 1709, 10 vols. 12mo.; and that of Crevier, at Paris, 1735, 6 vols. 4to. A fragment of Livy's history was published in 1773, by Dr. Bruns.

LIVIVS ANDRONICUS, a comic poet, who flourished at Rome about A. A. C. 240. He was the first who turned the personal satires and fescennine verses into the form of dialogue and regular drama. Though the character of a player was reckoned despicable among the Romans, Andronicus acted a part in his dramatical compositions. He was a freed man of M. Livius Salinator, whose children he educated. His poetry was grown obsolete in the age of Cicero.

LIVONIA, a maritime province of the north-west of Russia in Europe, bounded by Esthonia on the north, and Courland on the south. It has an area of 21,000 square miles; but a population of not above 600,000, and consists of a vast tract of level marshy country, and several hundred lakes, great and small. Those of Peipus, Ljuban, and Wirzjev, are of considerable size. The soil is in general a rich loam, well calculated for tillage or pasturage; and it exports rye, barley, flax, hemp, and linseed. The cattle are small.

This country, which has been often the seat of war, was almost unknown to the south of Europe to the end of the twelfth century, when it was overrun by the Danes. It was, during the thirteenth and fourteenth centuries, governed by the Teutonic knights; and in the sixteenth the Poles acquired it. In the seventeenth century Russia and Sweden contested the possession of it; but in 1660 it was ceded to the latter by the peace of Olivia. The vice of drunkenness is said to be here particularly prevalent, and the wretchedness of the lower orders extreme. Edicts have recently been issued to lighten their vassalage; but a long time must elapse before they can produce a substantial result. Dorpat is the only university here, and Riga the only place of much trade.

LIXIVIAL, *adj.*

LIXIV'IALE, *adj.*

LIXIV'UM, *n. s.*

Lat. *lixivium*; Fr. *lixivieur*. Impregnated with salts like a *lixivium*; obtained by *lixivium*: *lixivate*, making a *lixivium*: *lixivium*, lie; water impregnated with alkaline salt; having the power of extraction.

In these the salt and *lixivated* serosity, with some portion of choler, is divided between the guts and the bladder.

Broune.

Lixivate salts, to which pot-ashes belong, by piercing the bodies of vegetables, dispose them to part readily with their tincture.

Boyle.

I made a *lixivium* of fair water and salt of wormwood, and, having frozen it with snow and salt, I could not discern any thing more like to wormwood than to several other plants.

Id.

Helmont conjectured, that *lixivial* salts do not pre-exist in their alcalizate form.

Id.

The symptoms of the excretion of the bile vitiated, were a yellowish color of the skin, and a *lixivial* urine.

Arbuthnot.

Lixivation is the separation, by means of water, or other fluid, of such substances as are soluble in the fluid from other substances that are not soluble in it.

Amison's Elements.

And, as the hydriodate of potash is very soluble and even a deliquescent salt, this circumstance accounts for its remaining in the mother-liquor during the subtraction of the subcarbonate of soda and other neutral salts from the alkaline *lixivium* by the usual process of evaporation. *Parke's Chemical Catechism*.

LIXURI, a town of the island of Cefalonia, Greece, having 6000 inhabitants. It has a harbour and a considerable trade, but has often suffered from earthquakes.

LIZARD ISLAND, one of the Direction islands in the South Pacific Ocean, is about 240 miles in circumference, rocky and barren. This name was given to it by captain Cook, from the number and large size of the lizards found here. It is twenty miles north-east of Cape Flattery.

LIZARD POINT, in Cornwall, the most southern point of England; whence ships bound westward usually take their departure. It is 282 miles south-west of London, and in long. 5° 11' 17" W., lat. 49° 57' 55" N.

LIZARD, *n. s.* Fr. *lizarde*; Lat. *lacerta*. An animal resembling a serpent, with legs. See LACERTA.

And the lizard, and the snail, and the mole. These are unclean to you.

Lev. xi. 30.

Thou'rt like a foul mis-shapen stigmatick,

Marked by the destinies to be avoided,

As venomous toads, or lizards dreadful stings.

Shakspeare.

There are several sorts of lizards; some in Arabia of a cubit long. In America they eat lizards; it is very probable likewise that they were eaten in Arabia and Judea, since Moses ranks them among the unclean creatures.

Cutler.

LIZARD. See LACERTA.

LLANDAFF, a city of Glamorganshire, 16 miles north-west from Cardiff, and 163 from London. Its name is supposed to be a corruption of Llan-ar-daff, Welsh, the church on the Taff, the walls of the church-yard being close to the river. The present structure was built by bishop Urban in 1120; it had two towers at the west end, eighty-nine feet high, of which that on the south only remains. The north tower was rebuilt in an elegant manner in the reign of Henry VII. The body of its ancient cathedral.

has been rebuilt. Among the ancient monuments of the bishops interred in this church, there is one representing an emaciated corpse in a winding-sheet, in which the appearance of death brought on by a long sickness is admirably portrayed. The ecclesiastical establishment consists of the bishop, archdeacon, twelve prebendaries, and two vicars choral. The episcopal see was founded about the end of the fifth century. This diocese includes great part of the counties of Glamorgan and Monmouth, and though this is styled a city, from being the see of a bishop, it is without a market. It has the benefit of a tolerably good harbour, that opens into the Severn at four miles distance. Fairs 9th of February and Whit-Monday.

LLANOS, the name given in South America to the vast level plains that occur in Colombia and other countries. In Colombia alone the area of the Llanos is estimated at 296,800 square miles. They are sometimes sandy, often covered with vegetation, and are supposed to have once been the bottom of the ocean.

LLANOS, SAN JUAN DE LOS, a province of the former kingdom of New Granada, bounded on the north by Varinas and Merida, on the east by Varinas, on the west by Santa Fe and Popayan, and south by the government of Quixos, and extending to the immense length and breadth of from 200 to 300 leagues. It is watered by the Apure, Meta, Casanari, and Orinoco. The soil is fertile, but the climate immoderately hot, especially on the widely extended plains, which the long grass shelters from all winds. In some of them Humboldt found the thermometer rise to 115°. Here were several missions, established by the monks of Santa Fe de Bogota and the Jesuits; but little is known concerning them.

LLANOS, SAN JUAN DE LOS, the capital of the above province, was formerly celebrated for the gold mines of its neighbourhood. It was founded in 1555; and is fifty miles E. S. E. of Santa Fe de Bogota. Long. 73° 55' 30" W., lat. 3° 11' N. This is also the name of several inconsiderable settlements of Spanish America.

LLANRWST, a market-town and parish of Denbighshire, twelve miles south from Aberconway, and 218 north-west from London; standing on the banks of the river Conway, over which it has a simple elegant bridge of three arches, built in 1636. The church is a plain building, adjoining which is a chapel built by one of the Wynne family. The river is navigable for small vessels within a mile and a half below the town. Near Llanrwst stands Gwydir House, the seat of lord Willoughby, an extensive pile, which marks the splendor of its ancient possessors. This town was in the high road from Shropshire to Holyhead, and, being the only market town in this part of the country, it is the centre of all the business of the populous vale in which it stands. It has a good market-house, and a free-school. Market-day Tuesday.

LLANTRISSANT, a borough, market-town, and parish of Glamorganshire, ten miles north-west from Llandaff, and 170 west from London. It is pleasantly seated on the side of a steep hill, the property of the marquiss of Bute, which abounds in lead-ore. Its name signifies

the church of the three saints; the church being dedicated to St. Ilhog, St. Devong, and St. Monow. The streets are steep and narrow, but many of the houses are tolerably well-built, and the prospects are picturesque. The town-hall and market-house were both erected by the late earl of Bute. Its ancient castle is in ruins. This borough is governed by a portreeve, and with Cardiff, Swansea, &c., unites in sending one member to parliament. Market on Friday.

LLORENTE (Don Juan Antonio), a modern Spanish historian, was chancellor of the university of Toledo, and a member of the Inquisition; a complete history of which, from the period of its establishment by Ferdinand V., was published by him, and translated into English in 1817. He accepted a situation under Joseph Buonaparte, and was therefore driven into exile on the return of Ferdinand; but being also expelled from France, by the influence of the court of Rome, he returned secretly to Madrid, where he died in the spring of 1823.

LLOYD (Nicholas), a learned lexicographer, in the seventeenth century, born in Flintshire, and educated at Wadham College, Oxford. He was rector of Newington, near Lambeth, in Surry, till his death in 1680. His *Dictionarium Historicum*, is a valuable work, to which Hoffmann and Moreri are greatly indebted.

LLOYD (Robert), an English poet, son of Dr. Pierson Lloyd, second master of Westminster school, where Robert was educated. He took his degree of M.A. at Cambridge. He published a poem, entitled the Actor, in 1760, the merit of which was so great, that, when the Rosciad appeared, he was supposed to be the author of that also. He was employed as usher at Westminster school, but lost it by his irregularities; and afterwards lived almost entirely on the generosity of his friend Churchill, the poet. He died in 1764. His poems were published by Dr. Kenrick, in 2 vols. 8vo. He also wrote the *Capricious Lover*, a comic opera, 1764, 8vo., and other dramatic pieces.

LLOYD (William), D.D., a learned English bishop, born in Berkshire in 1627, and educated under his father, who was vicar of Tylehurst in Berkshire. He entered into orders at Oxford; in 1660 was made prebendary of Ripon; and in 1666 chaplain to the king. In 1667 he graduated; in 1672 he was installed dean of Bangor; and in 1680 was consecrated bishop of St. Asaph. He was one of the seven bishops who were imprisoned in the tower, for subscribing a petition to the king against his declaration for liberty of conscience. Soon after the revolution he was made almoner to king William and queen Mary: in 1692 bishop of Lichfield and Coventry; and in 1699 of Worcester, where he sat till his death in 1717, in the ninety-first year of his age. His works are much esteemed.

LLOYD (Henry), a military officer and eminent writer on tactics, born in Wales, in 1729, was the son of a clergyman, who instructed him in the mathematics and classical literature. At the age of seventeen he went abroad, and he was present at the battle of Fontenoy. He afterwards travelled in Germany; and having resided some years in Austria, he was appointed aid-de-camp

to marshal Lascy. He was gradually promoted, till, in 1760, he was intrusted with the command of a large detachment of cavalry and infantry, destined to observe the movements of the Prussians. Lloyd executed this service with great success; but soon after resigned his commission in disgust. He [was then employed by the king of Prussia; and during two campaigns, he acted as aid-de-camp to prince Ferdinand of Brunswick. After the peace of Hubertsburg, he travelled, till the occurrence of hostilities between Russia and Turkey, when he offered his services to Catharine II., who made him a major-general. He distinguished himself in 1774, at the siege of Silistria; and, subsequently, he had the command of 30,000 men, in the war with Sweden. At length, he left Russia, and travelled in Italy, Spain, and Portugal. He visited general Eliott, at Gibraltar, whence he proceeded to England. Having made a survey of the coasts of the country, he drew up a Memoir on the Invasion and Defence of Great Britain, which was published in 1798. He retired, at length, to Huy, in the Netherlands, where he died, June 19, 1783. Besides the memoir he was the author of an Introduction to the History of the War in Germany, between the king of Prussia and the Empress-Queen; and a Treatise on the Composition of Different Armies Ancient and Modern. These works have been translated into French and German, and Jomini made use of the Introduction for his 'Traité des Grandes Opérations Militaires.' Other works of Lloyd's are said to have been brought up and suppressed by the government, and many of his papers are said to have been taken possession of, at his death, by a person supposed to be an emissary of the English ministry, among which were the Continuation of the History of the Seven Years' War, and a History of the Wars in Flanders.

LOYD'S LIST, a publication in which the sweeping news of the British empire is published, and which contains the earliest and most authentic information. It takes its name from Lloyd's Coffee House, in the Royal Exchange of London, whence the information contained in the list is obtained.

LO! *interj.* Sax. and Teut. lo, la, imperative f Look, to which refer. See; behold!

For lo! he sung the world's stupendous birth.

Roscommon.

LOACH, *n. s.* Fr. *loche*; Lat. *lotus*. A fish; the COBITIS, which see.

The loach is a most dainty fish; he breeds and feeds in little and clear swift brooks or rills, and lives there upon the gravel, and in the sharpest streams: he grows not to be above a finger long, and no thicker than is suitable to that length: he is of the shape of an eel, and has a beard of wattels like a barbel: he has two fins at his sides, four at his belly, and one at his tail, dappled with many black or brown spots: his mouth, barbel-like, under his nose.

Walton's Angler.

LOAD, *n. s. & v. a.* Sax. *hlæde*; Swed. *lada*; Ital. *lade*; Teut. *laden*. Preterite loaded; part. loaded, loaden or laden. A burden; weight; freight; pressure: hence violence of blows; any thing that depresses; as much of drink, or any other thing, as can be borne.

LOAD, or
LODE, *n. s.* } More properly written
LOADS'MAN, } lode; Sax. *hlæban*, to lead;
LOAD'STAR, } Goth. *lod*, *leid*; Dan. *lood*.
LOAD'STONE, } Signifying respectively, the
leading vein of a mine; a
leading man or pilot: leading star, i.e. the pole-
star, or cynosure: leading stone, i.e. the magnet
by which mariners are led or directed.

And this sterre, that is toward the Northe, that wee
clepen the lode sterre ne apperethe not to hem.

Sir J. Mandeville.

Then saw I how woful Calistope,
Whan that Diane agreved was with here,
Was turned from a woman til a bere,
And afir was she made the lode-sterre.

Chaucer. Cant. Tales.

My Helice, the loadstar of my life.

Spenser.

Their manner of working, in the lead mines, is to
follow the lode as it lieth.

Carew's Survey of Cornwall.

O happy fair!

Your eyes are loadstars, and your tongue sweet air!
More tuneable than lark to shepherd's ear
When wheat is green, when hawthorn buds appear.

Shakspeare.

That clear majesty

Which standeth fixed, yet spreads her heavenly
worth,

Lodestone to hearts, and loadstar to all eyes.

Davies.

She was the loadstar of my life; he the blessing
of mine eyes; she the overthrow of my desires, and
yet the recompence of my overthrow.

Sidney.

The grace of God's spirit, like the true loadstone
or adamant, draws up the iron heart of man to it;
and holds it in a constant fixedness of holy purposes
and good actions.

Bp. Hall.

The use of the loadstone was kept as secret as any
of the other mysteries of the art.

Swift.

The loadstone is a peculiar and rich ore of iron,
found in large masses, of a deep iron-grey where
fresh broken, and often tinged with a brownish or
reddish color; it is very heavy and considerably hard,
and its great character is that of affecting iron. This
ore of iron is found in England, and in most other
places where there are mines of that metal.

Hill's Materia Medica.

LOAD, or LODE, is used, particularly in the tin
mines, for any regular vein or course, whether
metallic or not; but most commonly for a metallic
vein. Mines in general are veins or cavities
within the earth, whose sides, receding from or
approaching to each other, make them of unequal
breadths in different places, sometimes forming
large spaces, which are called holes; these holes
are filled like the rest with substances, which,
whether metallic, or of any other nature, are
called loads. When the substances forming these
loads are reducible to metal, the loads are by the
English miners said to be alive, otherwise they
are termed dead loads. In Cornwall and Devon-
shire the loads all hold their course from east to
west, though in other parts of England they fre-
quently run from north to south. The miners
report, that the sides of the load never bear in a
perpendicular, but always overhang either to the
north or south above. The mines seem to have
been so many channels through which the waters
pass within the earth; and like rivers they have
their small branches opening into them in all
directions: these are by the miners termed the

feeders of the load. Most mines have streams of water running through them; and, when they are found dry, it seems owing to the water having changed its course; which it seems sometimes to have been compelled to do, by the load having filled up the course, and sometimes to have fallen into other more easy channels. The load is frequently intercepted by the crossing of a vein of earth or stone, or some other metalline substance; in which case it generally happens, that one part of the load is moved to a considerable distance on one side. This transient load is, by the miners, termed a *flooding*; and the part of the load which is moved is by them said to be *heaved*. This fracture or heave of a load, according to Mr. Price, is produced by a subsidence of the strata from their primary positions, which he supposes to have been horizontal or parallel to the surface of the earth, and therefore should more properly be called a depression than a heave. This heaving of the load would be an inexpressible loss to the miner, did not experience teach him, that, as the loads always run on the sides of the hills, so the part heaved is always moved towards the descent of the hill; so that the miner, working towards the ascent of the hill, and meeting a *flooding*, considers himself as working in the heaved part; wherefore, cutting through the *flooding*, he works upon its back up the ascent of the hill, till he recovers the load, and vice versa. See *MINE*.

LOADED SHELL, an ingenious contrivance for saving the lives of people in imminent danger, on board a ship, when the vessel is either stranded, or in danger of being so, near the coast. It is a bomb-shell filled with lead, wherein a staple or ring is fixed, to which a rope is fastened; and the shell, thus loaded, being thrown on shore, fixes itself in the ground, and, the other end of the rope being fastened to the ship, the persons on board are thereby enabled to haul themselves ashore. It was invented by John Bell, serjeant of the royal regiment of artillery, who obtained a premium for it of fifty guineas in 1792, from the Society for the Encouragement of Arts, &c., after exhibiting its utility and practicability before a committee of the society. On this occasion a loaded shell, weighing about seventy pounds, was thrown on shore, from a small mortar fixed in a boat, moored in the Thames, about 200 yards from the coast. The shell, falling about 100 yards within land, buried itself about eighteen inches in the gravel, when Bell and his assistant, on a raft floated by casks properly allasted, hauled themselves ashore in a few minutes by the rope affixed to the shell.

LOADSTONE. See *MAGNET*.
LOAF, *n. s.* Sax. *hlaf*, *laf*; Goth. *hleif*, *laf*; Sax. *þlufian*; Lat. *levo*, to raise up. See *HEAVEN*. A mass or large portion of bread: hence masses of other bulky articles.

And thei forgotten to take bread, and thei haddan ot with hem but oo loaf in the boot.

Wiclif. Mark 8.

Easy it is
 Of a cut loaf to steal a shive we know.

Shakspeare.

Democritus, when he lay a dying, caused loaves of ew bread to be opened, poured a little wine into

them; and so kept himself alive with the odour till a feast was past.

Bacon.

The bread corn in the town sufficeth not for six days: hereupon the soldiers entered into proportion; and, to give example, the lord Clinton limited himself to a loaf a-day.

Hayward.

With equal force you may break a loaf of bread into more and less parts than a lump of lead of the same bigness.

Digby.

Your wine becomes so limpid, that you may bottle it with a picce of loaf sugar in each bottle.

Mortimer.

It undergoes in Europe several refinings in order to form it into loaf sugar.

Parkes's Chemical Catechism.

LOAM, *n. s.* & *v. a.* } Sax. *laam*; Teutonic
LOAM'Y, *adj.* } *leim*; Lat. *limus* (of Gr. *λυμη*, a fen, says Junius). Rich tenacious earth; marl.

Men are but gilded loam or painted clay.

Shakspeare.

Alexander returneth to dust; the dust is earth: of earth we make loam; and why of that loam might they not stop a beer barrel?

Id.

The mellow earth is the best, between the two extremes of clay and sand, if it be not loamy and binding.

Bacon.

Auricula seedlings best like a loamy sand, or light moist earth; yet rich and shaded.

Evelyn.

The joist ends, and girders which be in the walls, must be loamed all over, to preserve them from the corroding of the mortar.

Moxon's Mechanical Exercises

LOAN, *n. s.* Sax. *plæn*, *lan*; Goth. and Swed. *lan*. Something lent; amount of monies lent or bargained for in the way of borrowing.

The better such ancient revenues shall be paid, the less need her majesty ask subsidies, fifteens, and loans.

Bacon

You're on the fret,

Because, in so debauched and vile an age,
 Thy friend and old acquaintance dares disown
 The gold you lent him, and forswear the loan.

Dryden.

As none but kings have power to raise

A levy, which the subject pays,

And tho' they call that tax a loan,

Yet when 'tis gathered 'tis their own.

Butler

LOANS, in modern finance, are the basis of the funding system, and the reader will find their general effect on the finances of this country traced in our article *FUNDS*.

The British mode of negotiating loans is there particularly pointed out. Very extensive contracts of this nature have however of late been made in this country by the agents of foreign governments. The terms of the loan required are stated to one of the larger merchants or bankers, the security offered, &c., and this house and its friends have the management of the loan, and the payment of the dividends upon it. There is hardly a civilised state in the world that has not raised money in this way in London since the peace of Paris. These loans have, we fear, in many instances, proved any thing but what their name would import, i. e. money advanced with the prospect of its being returned. Minor states, however, have thus participated in the wealth of more established communities; in some cases (as in the mercantile Greek loans) they have received but a small share of advan-

tage from their pledged resources; and these measures as interlinking the prosperity of numerous and distant nations are a species of security, perhaps, against the frequent recurrence of wars.

LOAN-BANKS, or lending-houses, were establishments of an ancient date, supported by humane persons, with a view of lending money to the poor. The emperor Augustus we are told converted into a fund the surplus of the money which arose to the state from the confiscated property of criminals, and lent sums from it, without interest, to those who could give security for its return, equal to double the amount. Suet. Vit. Augusti, cap. 41. Tiberius also advanced a large capital, from which those were supplied with money, for three years, who could give security of this kind in land. Suet. Vit. Tiberii, cap. 48. Tacit. Annal. vi. 17. Dio Cassius, cap. viii. 21. Alexander Severus also advanced certain sums at a low rate, to the poor without interest to purchase lands, and received payment from the produce of them. Æl. Lamprid. Vit. Alex. Severi, cap. 21.

In modern Italy, the pontiffs at first patronised the erection of lending-houses to advance money to the poor without interest; then they allowed these houses to receive interest, not for the whole capitals which they lent, but only for a part, that they might raise money sufficient to defray their expenses. In process of time, under pretext of improving their resources for the public benefit, it was thought proper, to give to those who should advance money a moderate interest concealed by blending it with the unavoidable expenses of their establishments. The interest received was said to be 'pro indemnitate;' in the papal bulls, and the pope declared the lending-houses or 'holy mountains of piety,' as they were called, to be legal; threatening those with vengeance who dared to entertain any doubts on the subject. Most of the Italian cities now therefore established lending-houses: their origin, in the strict sense of the term, is referred to the time of Pius II. or Paul II., but the greater part of them were established in the fifteenth and following centuries by certain Minorites. The Dominicans exclaimed against these institutions as *montes impietatis*, and the dispute respecting them was agitated with so much warmth in the beginning of the sixteenth century, that Leo X. was obliged in the council of the Lateran to declare by a particular bull, that lending-houses were legal and useful; that all doubts to the contrary were sinful; and that those who should write against them would be in a state of excommunication. The holy council of Trent also decreed their legality, and confirmed their use.

LOANDO, or LOANDO ST. PAUL'S, the capital of the Portuguese settlements in Angola, Southern Africa, was founded in 1578. It covers a large extent of ground, but the white population is not more than 3000 in number; the number of negroes is perhaps 5000. Provisions are plentiful; but the water is bad, and must be brought, either from a neighbouring river, or the opposite island of this name. Loando contains three convents, and is the seat of

a bishop, but is wholly without forts and ever walls. Long. 13° 22' E., lat. 8° 55' S.

LOANDO, the island opposite to the foregoing city, is about twenty miles long, and one broad. It is separated from the continent by a narrow channel, which the natives often swim across. It produces goats and sheep, and contains seven or eight villages. The citizens have a number of country houses and gardens here. It yields the best water in all the neighbourhood. Lat. 8° 50' S.

LOANGO, a considerable, but unexplored country of Western Africa, to the north of the river Zaire or Congo. The country, which owns the supremacy of the king, is said to extend from Cape St. Catherine to the Zaire, having a coast of upwards of 400 miles: Loango Proper occupies only the middle part of this space. The character of the whole coast is very similar, and is thus described by captain Tuckey in his *Maritime Geography*.—

Mayumba, or Alvarez Martin's Bay, is three leagues wide between Cape Primero on the north, which takes in three saddle hills, and Cape Secundo, or Matooty, on the south, from which a reef runs out to the north one mile and a half; and off Cape Primero is a sunken rock with but two fathoms and seven fathoms all round. This bay affords good anchorage in four to seven fathoms. Ten leagues south of Mayumba is Cape Sellage, on the south side of which, and close to the main, is a small island, and two leagues farther south, and three leagues off shore, a reef of breakers. Kilonga River is sixteen leagues south of Cape Sellage, and is closed by a bar that admits only canoes; it is known by a hill on the north, with a knob on the summit; north of the river's mouth is a large lagoon. Seven leagues south of Kilongo is Moutas River, crossed by a bar of sand and stones, on which the depth is two fathoms.

Loango Bay is surrounded by red cliffs. From its south point a reef, called the Indian Bar, runs nearly half way across the bay, but within it is good anchorage in four fathoms, three quarters of a mile from the shore. The surf, however, prevents landing, except in the canoes of the country. Within the beach is a lagoon, named Barachonas, which communicates with the sea through the beach, or rather in high surfs the waves beat over the beach; but, when the sea outside is smooth, the beach remains dry, and the lagoon empties itself by filtration and evaporation: when half empty it may be passed on foot, but when full it is extremely dangerous.

Sixteen leagues south of Loango is Malemba; an open road, the approach to which is denoted by the high mountains of Caongo, which rise behind a bay of the same name, into which falls a little river: the anchorage in this bay is bad. Malemba is a mountain, rising perpendicularly from the water to the height of seventy fathoms, and descending towards the land; before it is a bar of volcanic rocks, one mile and a half from the shore, which is sometimes dangerous to pass, but, when within it, landing is perfectly commodious, in a little cove called Paradise, or Canoe Cove, and in another, named Sloops Cove, is the watering place; the latter is, however, beat by

the surf, through which the casks are obliged to be swam, not without risk from the sharks. The anchorage is outside the bar, a league and a half from the shore. The trading place is on the summit of the mountain, the ascent to which is through a ravine formed by the rains, and is difficult and surrounded by precipices, so that a false step may endanger life. Goats, hogs, and fruit, are abundant at Malemba, and a great slave trade was formerly carried on here by the French. A league and half to the south-east is the lagoon of Loanguilly abounding with fresh water fish.

Cabenda, five leagues south of Malemba, is named the Paradise of the Coast, from its agreeable situation, and the facility of landing. It is known by a single sugar-loaf mountain, covered with wood. The south point of the bay is named Cabenda Hook, or Palm-tree Point: it is long, low, and covered with palm-trees, and shelters the bay on the south. The anchorage is within this point, in four fathoms, within two miles of the shore, the hook bearing S. S. W. and the sugar loaf E. S. E.; a small river falls into the bay, and receives boats at its mouth; half a mile above which the water is fresh, but is said to be unwholesome. There is also another watering place a little south of the point of the hook on the side of the sea: the surf here renders watering difficult, but the water which issues from a spring is excellent. The tide never rises by the shore more than one inch and a half. The bay abounds in fish, and has good places for hauling the seine.

Half way between Malemba and Cabenda is the little river Bela, off which is a line of banks of the same name, whose north extremity is a league and a half south of the anchorage in Malemba. Their approach is dangerous, as there is seven fathoms close alongside of them; hence vessels sailing from Malemba to the south are cautioned to keep off in twelve fathoms. On these banks are taken great quantities of fish. The coast of Congo commences at the river Zaire.

The climate is said to be fine, and never subject to hurricanes, nor even to violent winds. Rain occurs rarely, and is never violent: while the dews are sufficient for vegetation. The winter is in May, June, and July, when the nights are cooler, but without being chill. The soil is in general a red stiff clay, very fertile; the sand on the coast is extremely fine, and carried about by the lightest breeze. The coast is high; but the hills are covered with earth and luxuriant vegetation. The lakes and rivers abound with fish, and the forests with game. But the bounties of nature are little improved by an indolent people. Almost the only grains grown are manioc, maize, and a species of pulse called msangen. The women just stir the ground to the depth of an inch, and cover up the grain, to prevent it from being devoured by the birds: and even this slender culture is confined to little spots like gardens, situated around the villages. The rest of the country is covered with luxuriant herbs, rising to the height of eight feet, through which it is almost impossible to pass. The potatoe and yam are abundant. The most remarkable tree is the mapon, distinguished, like the baobab, by the enormous dimensions of its trunk: but it

affords neither fruit, shade, nor fuel, and forms thus a striking contrast to the extreme utility of the cocoa tree, which also abounds. Palm trees are also plentiful.

The wild animals are hyænas, tyger-cats, and ounces. The hare, antelope, and Chinese hog, are also seen: but it is remarkable that neither the horse, the cow, the sheep, nor the ass, have multiplied in this country.

It is obvious that the population of this coast cannot be in proportion to its extent. The inhabitants are not supposed by Degrandpré to exceed 600,000. Their houses are of straw and junk, roofed with palm-leaves cemented by twigs. Their grandees, and even kings, have only a number of these upon the same plan.

The government here is despotic, and the dignity transmitted only it is said in the female line. The son even of the king, by a female of ordinary rank, enjoys no dignity above the rest of the subjects. The princesses choose their own husband, who does not enjoy the liberty of declining the honor; and who is entirely debarred from that privilege of polygamy which is enjoyed in the most unlimited measure by other nations. He is prevented, if possible, even from seeing any other woman.

The object for which Europeans have resorted to this coast is the disgraceful one of the trade in slaves. The coast to the south of the Zaire is almost entirely in the possession of the Portuguese. While Loango was in the height of its power, its port was almost the exclusive theatre of this trade; but now Mayumba, Malemba, and Cabenda are as much frequented.

LOANGO, the capital of the above kingdom of Loango, is about four miles in circuit, but does not contain a population of above 15,000, and there are not in the whole above 600 enclosures. The land in the vicinity is fertile, and the water excellent. It is not above a league from the sea. The entrance of the bay we have described. It is recognised by red cliffs, which, illumined by the morning rays, appear as if on fire. The longitude, according to captain Tuckey's observations, appears to be about $12^{\circ} 30' E.$, lat. $4^{\circ} 40' N.$

LOATH, <i>adj.</i>	Sax. <i>lað, laðian</i> ;
LOATH'E, <i>v. a. & v. n.</i>	Teut. <i>leiden</i> , to dislike.
LOATH'FUL, <i>adj.</i>	Unwilling; uninclined;
LOATH'INGLY, <i>adv.</i>	unready; averse;
LOATH'LY, <i>adj. & adv.</i>	to loathe is to hate; ab-
LOATH'NESS, <i>n. s.</i>	hor; disrelish; feel ab-
LOATH'SOME, <i>adj.</i>	horrence or disgust;
LOATH'SOMENESS, <i>n. s.</i>	and, in an obsolete

sense, to create disgust: loathly is used both for hateful and exciting hatred; as well as adverbially for unwillingly; without liking: loathsome is also abhorred or causing abhorrence or disgust.

The fish in the river shall die, and the river stink; and the Egyptians shall loath to drink of the water.

Exodus.

For on my portos here I make an oth,
That never in my lif, for lefe ne loth,
Ne shal I of no conseil you bewray.

Chaucer. Cant. Tales.

When he heard her answers loth, he knew
Some secret sorrow did his heart distress.

Fairie Queene

l

They with their filthiness
Polluted this same gentle soil long time,
That their own mother *loathed* their beastliness.
Spenser.

Where I was wont to seek the honey bee,
The grisly toadstool grown there might I see,
And *loathing* paddocks lording on the same. *Id.*

An huge great dragon, horrible in sight,
Bred in the *loathy* lakes of Tartary,
With murderous ravin. *Faerie Queene.*

Before such presence to offend with any the least
unseemliness, we would be surely as *loth* as they who
most reprehend or deride what we do. *Hooker.*

Which he did with *loathful* eyes behold,
He would no more endure. *Hubbard's Tale.*

To speak so indirectly, I am *loath* ;
I'd say the truth ; but to accuse him so,
That is your part.

Shakspeare. Measure for Measure.
Sour-eyed disdain and discord shall bestow
The union of your bed with weeds so *loathly*,
That you shall hate it. *Id. Tempest.*

Lothly opposite I stood
To his unnatural purpose.

Id. King Lear.
Should we be taking leave,
As long a term as yet we have to live,
The *loathness* to depart would grow.
Shakspeare.

The sweetest honey
Is *loathsome* in its own deliciousness,
And in the taste confounds the appetite. *Id.*
After they had sat about the fire, there grew a
general silence and *lothness* to speak amongst them ;
and immediately one of the weakest fell down in a
swoon. *Bacon.*

Long doth she stay, as *loth* to leave the land,
From whose soft side she first did issue make ;
She tastes all places, turns to every hand,
Her flowery banks unwilling to forsake. *Davies.*
This shows that you from nature *loathly* stray,
That suffer not an artificial day. *Donne.*
How *loth* is God to strike, that threats so long.

Bp. Hall.
Loathing the honey cakes, I longed for bread.
Cowley.

Then wilt thou not be *loth*
To leave this paradise, but shalt possess
A paradise within thee, happier far ! *Milton.*
While they pervert pure nature's healthful rules
To *loathsome* sickness. *Milton's Paradise Lost.*
Such indignities did add somewhat of *loathsomeness*
to his cup of affliction. *Barrow.*
Parthenia had learned both liking and misliking,
loving and *loathing*. *Sidney.*

To pardon willing, and to punish *loth* ;
You strike with one hand, but you heal with both ;
Lifting up all that prostrate lie, you grieve
You cannot make the dead again to live. *Walter.*

As some faint pilgrim standing on the shore,
First views the torrent he would venture o'er
And then his inn upon the farther ground,
Loth to wade through, and *lother* to go round
Then dipping in his staff does trial make
How deep it is ; and sighing, pulls it back.
Dryden.

Red blisters rising on their paps appear,
And flaming carbuncles, and noisome sweat,
And clammy dews, that *loathsome* lice beget ;
Till the slow creeping evil eats his ways.
Id. Virgil.

For thee the lion *loaths* the taste of blood,
And roaring hunts his female through the wood.
Dryden.

If we consider man in such a *loathsome* and pro-
voking condition, was it not love enough that he was
permitted to enjoy a being ? *South.*

Why do I stay within this hated place,
Where every object shocks my *loathing* eyes ?

Rowe.
The catacombs must have been full of stench and
loathsomeness, if the dead bodies that lay in them
were left to rot in open niches. *Addison.*

Loathing is a symptom known to attend disorders
of the stomach ; the cure must have regard to the
cause. *Quincy.*

Our appetite is extinguished with the satisfac-
tion, and is succeeded by *loathing* and satiety.
Rogers.

Now his exalted spirit *loaths*
Incumbrances of food and clothes. *Swift.*
Body and soul, like peevish man and wife,
United jar, and yet are *loath* to part. *Young.*
The occurrences of life, by the time we come to
know it a little, would be incapable of affecting the
mind with any other sensations than those of *loathing*
and weariness, if many things were not adapted to
affect the mind by means of other powers besides no-
velty in them, and of other passions besides curiosity
in ourselves. *Burke on the Sublime.*

The limb which it adorned, its only mould ;
So beautiful—its very shape would charm,
And clinging as if *loth* to lose its hold,
The purest ore inclosed the whitest skin
That e'er by precious metal was held in. *Byron.*

Thought of the gloomy day and ghastly night,
That dreads the darkness, and yet *loathes* the light,
That winds around, and tears the quivering heart !
Ah ! wherefore not consume it—and depart ? *Id.*

LOB, *n. s. & v. a.* } Belg. *los*, *loon* ; Swed.
LOU'S-POUND. } *lom*, slow. A sluggard :
a large earth worm : to *lob* is to let fall in a slow
sluggish manner : *lob's-pound*, a house of oor-
rection.

Farewel, thou *lob* of spirits, I'll begone,
Our queen and all her elves come here anon.
Shakspeare.

The horsemen sit like fixed candlesticks,
And their poor jades
Lob down their heads, dropping the hide and hips.
Id.

Crowderow, whom in irons bound,
Thou basely threw'st into *lob's pound*.
Hudibras.

For the trout the dew worm, which some also call
the *lob* worm, and the brandling, are the chief.
Walters's Angler.

LOBBY, *n. s.* Teut. *laube*. The opening or
waiting place before a room, public or private
His *lobbies* fill with tendance,
Rain sacrificial whisperings in his ear,
Make sacred even his stirrup.

Shakspeare. Timon of Athens.
Before the duke's rising from the table, he stood
expecting till he should pass through a kind of *lobby*
between that room and the next, where were divers
attending him. *Wotton.*

Try your backstairs, and let the *lobby* wait,
A stratagem in war is no deceit. *King.*

LOBE, *n. s.* Fr. *lobe* ; Gr. *λοβος*. A division
distinct part : particularly a part of the lungs or
liver.

Nor could the *lobes* of his rank liver swell
To that prodigious mass, for their eternal meal.
Dryden.

From whence the quick reciprocating breath,
The *lobe* adhesive, and the sweat of death.
Sewall.

Air bladders form lobuli, which hang upon the bronchia like bunches of grapes; these lobuli constitute the lobes, and the lobes the lungs.

Arbuton on Aliments.

LOBEL (Matthias), M. D., physician and botanist to king James I., was born at Lisle in 1538. He published several esteemed works, viz. 1. *Plantarum seu Stirpium Historia*, folio; 2. *Dilucidæ Simplicium Medicamentorum Explicationes, et Stirpium Adversaria, &c.*, folio; 3. *Icones Stirpium*, 4to.; 4. *Balsami Explanatio*, 4to.; 5. *Stirpium Illustrationes*, 4to. He died at London in 1616, aged seventy-eight.

LOBELIA, cardinal flower, a genus of the monogamia order, and syngenesia class of plants: natural order twenty-ninth, campanaceæ: cal., quinquefid: cor. monopetalous and irregular: caps. inferior, bilocular, or trilocular. There are many species, but only four are cultivated in our gardens; of these two are hardy herbaceous plants for the open ground, and two shrubby plants for the stove. They are all fibrous-rooted perennials, rising with erect stalks from two to five or six feet high, ornamented with oblong, oval, spear-shaped, simple leaves, and spikes of beautiful, monopetalous, somewhat ringent, five-parted flowers, of scarlet, blue, and violet colors. They are easily propagated by seeds, offsets, and cuttings of their stalks. The tender kinds require the common treatment of other exotics. They are natives of America, from which their seeds must be procured.

L. siphilitica grows in most places in Virginia, and stands our winter. The root is an article of the materia medica. It is perennial, has an erect stalk three or four feet high, blue flowers, a milky juice, and a rank smell. The root consists of white fibres about two inches long, resembles tobacco in taste, which remains on the tongue, and is apt to excite vomiting. It is used by the North American Indians as a specific for the venereal disease. The form is by decoction; the dose is gradually increased till it bring on very considerable purging, then intermitted for a little, and again used in a more moderate degree till the cure be completed. The ulcers are also washed with the decoction, and the Indians sprinkle them with the powder of the inner bark of the spruce tree. The same strictness of regimen is observed as during a salivation by a mercurial course.

LOBINEAU (Guy Alexis), a Benedictine monk born at Rennes, in 1666. He wrote several works of reputation; particularly, 1. *The History of Brittany*, 2 vols. folio. 2. *A continuation of Felibium's History of Paris*, 9 vols. folio. 3. *A History of Spain*. 4. *A Translation of Polybius*. He died in 1727, aged sixty-one.

LOBO (Jerome), a famous Portuguese Jesuit, born at Lisbon. He travelled into Ethiopia, as a missionary, and continued there for a long time. At his return he was made rector of the college of Coimbra, where he died in 1678. He wrote *An Historical Account of Abyssinia*, which is esteemed, and was translated into French by Le Grand, and into English by Dr. Johnson.

LOBSTER, *n. s.* Sax. *lobtcep*. A crustaceous fish.

Those that cast their shell, are the lobster, the crab and craw-fish. *Bacon's Natural History.*

LOBSTER. See CANCER.

LO'CAL, *adj.*

LOCAL'ITY, *n. s.*

LO'CALLY, *adv.*

LOCAT'ION, *n. s.*

Fr. *local*; Lat. *locus*. } Pertaining to, or having the } properties of, place; being }
in a particular place: local- }
ity is state or condition in relation to place: }
location, the act of placing or of occupying a }
particular place.

By ascending, after that the sharpness of death was overcome, he took the very local possession of glory, and that to the use of all that are his, even as himself before had witnessed, I go to prepare a place for you. *Hooker.*

How is the change of being sometimes here, sometimes there, made by local motion in vacuum, without a change in the body moved? *Digby on Bodies.*

Dream not of their fight,

As of a duel, or of the local wounds

Of head or heel. *Milton's Paradise Lost.*

That the soul and angels are devoid of quantity and dimension, and that they have nothing to do with grosser locality, is generally opinioned.

Glanville.

Whether things, in their natures so divers as body and spirit, which almost in nothing communicate, are not essentially divided, though not locally distant, I leave to the readers. *Id.*

To say that the soul is somewhere, means no more than it does exist; this, though a phrase borrowed from place, signifying only its existence, not location. *Locke.*

A higher flight the venturous goddess tries,
Leaving material world, and local skies. *Prior.*

Which fashions also and institutions themselves have grown out of the exigencies, the climate, situation, or local circumstances of the country. *Paley.*

Not that I mean to approve, or would enforce
A superstitious and monastic course:

Truth is not local, God alike pervades

And fills the world of traffic and the shades. *Cowper.*

In case of invasion, or appearance of an enemy in force upon the coast of any part of the united kingdom, his majesty may order the local militia to be embodied and marched to any part of Great Britain.

Local Militia Act.

LOCAL, in law, something fixed to the freehold, or to a certain place: thus, real actions are local, since they must be brought in the county where they lie: and local customs are those particular to certain countries and places.

LOCH, *n. s.* Scottish. A lake.

A lake or loch, that has no fresh water running into it, will turn into a stinking puddle.

Cheyne's Philosophical Principles.

LOCHABER, a district of Scotland, in Inverness-shire, bounded by Moydart on the west, Glengary on the north, Badenoch on the east, and Lorn on the south. It derives its name from the lake or loch Aber; and extends about twenty miles from east to west, and thirty from north to south. The country is barren, bleak, mountainous, and rugged. In one of the most barren parts of this country, near the mouth of the River Aber, in the centre between the West and North Highlands, stands Fort William, with the town of Maryburgh, built upon a navigable arm of the sea, near the foot of Ben Nevis. The inhabitants pay little attention to any commerce, but

that which consists in the sale of their black cattle; and hunt fowl and fish as the seasons permit, and as their occasions require.

LOCHES, a town of France, in the department of Indre and Loire, and late province of Touraine. It is defended by a strong castle, and was anciently famous, or rather infamous, for its horrid dungeons, built by Lewis XI; in one of which Lewis Strozza, duke of Milan, after ten years' imprisonment, ended his days. It is seated on the Indre, fifteen miles south of Amboise, and twenty south-east of Tours. Long. $0^{\circ} 51'$ E., lat. $47^{\circ} 10'$ N.

LOCH-LEVEN, a spacious and beautiful lake of Kinross-shire, about fifteen miles in circumference and four in length, interspersed with islands of various appearance and extent. One of these, called St. Serf's Isle, contains forty-eight acres of good pasture. The ancient priory of Loch-Leven, founded by Brudus king of the Picts, was seated in it: two miles north of it lies a small island almost covered with the ruins of a castle, anciently belonging to the Douglasses of Loch-Leven, and afterwards used as a state prison. In this castle, the unfortunate Mary queen of Scots was kept a close prisoner, from June 16th, 1567, to May 2d, 1568. It is said to have been founded by Congal, the son of Dongart king of the Picts, and occasionally inhabited by king Alexander III. Its whole circuit is 585 feet. Patrick Graham archbishop of St. Andrew's, and grandson of king Robert III., died a prisoner here in 1468; and the earl of Northumberland was imprisoned in it from 1569 to the end of 1572. The island is ornamented with trees. The lake abounds with a great variety of different kinds of trouts, of a high flavor and bright red color. The lake also abounds with eels, pikes, perches, &c.; and the islands in it are frequented by herons, snipes, teals, swans, gulls, rails, king's fishers, &c.

LOCHMABEN, an ancient royal borough in Annandale; governed by a provost, three bailies, dean of guild, treasurer, and nine counsellors. Its first charter, granted by king Robert I., being destroyed with its records by the English, a new one was granted by James VI. in 1612. It has fairs in January, April, July, and October, and joins with Dumfries, Sanquhar, Annan, and Kirkcudbright, in sending a representative to the imperial parliament. It is almost surrounded with lakes, and is seated on the west side of the Annan, near its junction with the Ae and Kilmel; eight miles north-east of Dumfries, and twenty-two from Annan.

The site of a very ancient castle, close to the town, on a fine eminence, between the castle and Kirk Lochs, surrounded by a deep moat and fosse, is still visible. It was the original seat of the Bruces, lords of Annandale, and the birth-place of king Robert Bruce. The stones were carried away to build another castle, which is seated on a peninsula in the castle Loch, and was by far the largest and strongest of any either on the English or Scottish borders next to Carlisle, against which it was a frontier garrison. It occupies about an acre, and contains three courts, strongly built of stone and lime. The walls are twelve feet thick. It was surrounded with three

deep fosses, filled with water from the lake which met on each side. The whole fortification contains about thirteen acres. The inner foss went through the castle, within which there was a basin for the boats, to preserve them from the enemy and the weather. Before the Union, a garrison of 200 men was constantly kept in it. The castle Loch, on which it stands, is a beautiful lake on the south side of the town, one mile and a half long and one broad.

LOCK, *n. s., v. a., & v. n.* } Sax. *loc*, *lucan*; }
Lock'er, *n. s.* } Goth. *lok*, *luka*. A }
Lock'er, } fastening by way of
 clasp, bolt, or grapple; a quantity of hair or wool hanging together: hence any thing that stops or secures an opening; secures the priming of a gun, &c.: to lock is to fasten or shut with locks; hence to close or fasten any way; and, as a verb neuter, to become fast; to unite: a locker, and locket, things fastened by a lock or catch; also the catch or spring of such things.

Thine herte to me now woll I shet,

For all thy joiful *loke* and knet

I bind undir this little keie,

That no wight maie cary awaie.

Chaucer. Romaunt of the Rose.

His grisly *locks*, long growen and unbound,
 Disordered hung about his shoulders round.

Spenser.

No gate so strong, no *lock* so firm and fast,
 But with that piercing noise flew open quit or brast.

Id. Faerie Queene.

For not of wood, nor of enduring brass

Doubly disparted it did *lock* and close,

That when it *locked*, none might through it pass.

Id.

We have *locks*, to safeguard necessities,

And pretty traps to catch the petty thieves.

Shakspeare.

I am *locked* in one of them;

If you do love me, you will find me out. *Id.*

The bottom was set against a *lock* of wool, and the
 sound was quite deaded. *Bacon.*

Then seek to know those things which make us
 blest,

And, having found them, *lock* them in thy breast.

Denham.

They must be practised in all the *locks* and grips
 of wrestling, as need may often be in fight to tug
 or grapple, and to close. *Milton on Education.*

Where knights are kept in narrow lists,

With wooden *lockets* 'bout their wrists.

Hudibras.

A goodly cypress, who bowing her fair head over
 the water, it seemeth she looked into it, and dressed
 her green *locks* by that running river. *Sidney.*

Either they *lock* into each other, or slip one upon
 another's surface; as much of their surfaces touches
 as makes them cohere. *Boyle.*

The garden, seated on the level floor,

She left behind, and, *locking* every door,

Thought all secure.

Dryden.

Sergesthus, eager with his beak to press

Betwixt the rival galley and the rock,

Shuts up the unwieldy centaur in the *lock*. *Id.*

If one third of the money in trade were *locked* up,
 must not the landholders receive one third less?

Locke.

As there are *locks* for several purposes, so are there
 several inventions in *locks*, in contriving their wards
 or guards. *Moxon.*

A gun carries powder and bullets for seven charges
 and discharges: under the breach of the barrel is

one box for the powder; a little before the *lock* another for the bullets; behind the cock a charger, which carries the powder to the further end of the *lock*. *Grewe.*

A *lock* of hair will draw more than a cable rope. *Id.*

Behold the *locks* that are grown white
Beneath a helmet in your father's battles.

Addison.
I suppose this letter will find thee picking of daisies, or smelling to a *lock* of hay. *Id.*
I made *lockers* or drawers at the end of the boat. *Robinson Crusoe.*

Death blasts his bloom, and *locks* his frozen eyes. *Gay.*

Two *locks* that graceful hung behind
In equal curls, and well-conspired to deck,
With shining ringlets her smooth ivory neck. *Pope.*

Your wine *locked* up,
Plain milk will do the feat. *Id. Horace.*

Always *lock* up a cat in a closet where you keep your china plates, for fear the mice may steal in and break them. *Swift.*

Prudent men *lock* up their motives; letting familiars have a key to their heart, as to their garden. *Shenstone.*

Fleecy *locks* and black complexion
Cannot forfeit Nature's claim;
Skins may differ, but affection
Dwells in white and black the same. *Couper.*

LOCKS. Mechanical fastenings for doors were employed at a very early period, and we have seen some of those brought from Herculeaneum that might, in complexity, vie with the most curious productions of the present day. From the various structure of locks, accommodated to their different intentions, they acquire various names. Those placed on outer doors are called stock-locks; those on chamber doors, spring-locks, those on trunks, trunk-locks, padlocks, &c. The principal parts of the spring-lock are, the main-plate, the cover-plate, and the pin-hole: to the main-plate belong the key-hole, top-hook, cross-wards, bolt-toe or bolt knob, drawback-spring tumbler, pin of the tumbler, and the staples; to the cover-plate belong the pin main-ward, cross-ward, step-ward, or dap-ward; to the pin-hole belong the hook-ward, main cross-ward shank, the pot or bread, bow-ward, and bit.

The principle on which all locks depend is the application of a lever to an interior bolt, by means of a communication from without; so that by means of the latter, the lever acts upon the bolt, and moves it in such a manner as to secure the lid or door from being opened by any pull or push from without. The security of locks, in general, therefore, depends on the number of impediments we can interpose betwixt the lever (the key) and the bolt which secures the door: and these impediments are well known by the name of wards, the number and intricacy of which alone are supposed to distinguish a good lock from a bad one. If these wards, however, do not in an effectual manner preclude the access of all other instruments besides the proper key, it is still possible for a mechanic of equal skill with the lock-maker to open it without the key, and thus to elude the labor of the other.

The excellence of locks consists in the security they afford; and as numberless schemes are continually brought forward by designing men, to elude every contrivance of the most ingenious mechanics, the invention of a durable lock, so constructed as to render it impossible for any person to open it without its proper key, has ever been an object of considerable importance.

Denon has engraved an Egyptian lock of wood of very clumsy construction; and such were those of the Greeks and Romans, or at least some similar. Bars or bolts suspended by chains were drawn backwards or forwards by means of a hook or key, or raised out of a latch, and let fall, or a bolt coggled was caught in one of the teeth, and drawn back by the key. Sometimes there was a box with a pin, which box received a bar, that the pin (balanos) confined. A key in the form of a vice, called balanagra, disengaged the pin, and the bar fell or turned aside. But wooden locks still exist in the Highlands, so artfully contrived by notches, made at unequal distances, within side, that they can only be opened by the wooden key which belongs to them. These were probably Celtic, for locks and keys of metal are found in British towns occupied by the Romans. Before the use of keys and locks they fastened their doors with knots, according to fancy, which were very difficult to unloose, because the secret was known only to the makers. The locks upon scrinia resemble our trunk locks. Du Cange mentions the pessusulus versatilis, or turning latch, box-locks, chain-locks, or padlocks, as early at least as 1381; gate-locks; the speldolum or crook by which a chain was let into the lock, and the vertevella not easily defined. The lock and key of Taillebois Castle was vast and substantial, in the form of a fetter lock. The locks of our old church doors and chests familiarly show their construction. On opening a small ancient brass ring lock, the letters on each ring were thus placed together E, R, C, O. Nares mentions also a padlock formed of rings, marked with letters (Amen) which when placed to form the word would open, but not otherwise. This therefore is not a modern fashion. It seems that on chamber-doors there were often two locks; one called the privy-lock.

The marquis of Worcester furnishes the following curious suggestion for the escutcheon of a lock: 'An escutcheon, to be placed before any of these locks with these properties. 1. The owner, though a woman, may, with her delicate hand, vary the ways of coming to open the lock 10,000,000 of times, beyond the knowledge of the smith that made it, or of me who invented it. 2. If a stranger open it, it setteth an alarm a-going, which the stranger cannot stop from running out; and besides, though none should be within hearing, yet it catcheth his hand, as a trap doth a fox; and, though far from maiming him, yet it leaveth such a mark behind it as will discover him if suspected; the escutcheon or lock plainly showing what money he hath taken out of the box, to a farthing, and how many times opened since the owner had been at it.'

The noble author does not enter into any further particulars of his contrivance: but Mr. Par-

tungton, in his edition of the work, thus illustrates it:—‘The two principal properties of this escutcheon may be readily contrived; and the first of them has, in fact, been already applied to a very ingenious padlock, invented by Mr. Marshall, and for which the Society of Arts voted him a reward of ten guineas. In Mr. M.’s escutcheon the letters or figures commonly used in the ring padlock allow an almost endless variety of changes, and the owner may in one minute alter the arrangement in such a manner that even the maker would experience as much difficulty to open it, as an entire stranger to its construction. To render the combination of letters variable, the characters must not be engraved upon the outside of the rollers themselves, but upon a thin brass hoop made to fit on its outer surface; and a spring fastened to the roller, and pressing upon the inside of the hoop, will cause a sufficient degree of friction to make them move together.

‘The other part of this invention is equally simple with the preceding. An alarm, such as is attached to a clock, may easily be wound up prior to closing the box; and the lid provided with a chamfered bolt or staple, capable of effecting its discharge when the box is opened.

‘To register the amount of money taken from the box, it will be necessary either to place each distinct piece of money in separate divisions, or to put a number together in one deep recess capable of admitting but one piece to pass at a time. As the pieces are shaken out, they will, in their passage, raise a lever capable of moving a wheel one division in the passage of each piece. The Bank of England have a method somewhat similar for registering the number of notes worked from the printing press of that establishment.’

In the year 1784 the Society of Arts conferred their silver medal on Mr. Taylor, of Petworth, for his improvement on the latch or spring-bolts of common locks. This was effected by simply reversing the tumbler, so that its curved side acts against two stubs fixed on the tail of the latch, and thrusts back the latter with ease; whether the knob be turned to the right or the left, when the lock is opened. Mr. Taylor has also, behind the tail of the latch, fixed a guide containing a groove, in which runs a small friction-wheel, that serves to keep the latch in its direct situation, and at the same time to diminish its friction; the arms of its tumbler are somewhat contracted, in order that the latch or spring bolt may move with greater facility. By this construction the parts of the tumbler and latch, which are in contact, move in a line, so that they pass over the greatest space under the smallest angle; and the lock itself may be constantly used for several years, without requiring the application of oil.

Various patents have been obtained for the construction of locks, so as to prevent the possibility of picking them: the principal of these is Mr. Bramah’s, registered in 1784. One of Mr. Bramah’s simplest forms of a lock for a drawer, or for a door, is represented in plate *Locks*, figs. 1, 2, 3, and 4; in which A represents the bolt, fitted to slide on the metal plate B C, by passing through a hole in the side C, which is turned

up; the other end of the bolt is guided by passing under proper grooves in the lower side of the circular box D D, which is screwed to the plate B to confine the bolt down. It contains the whole mechanism of the lock, consisting of an interior cylinder or barrel E E, shown in the section, fig. 3. This barrel is fitted to turn round within the box D D; the upper end *aa* being received into a cavity exactly fitting it, and the middle encompassed by a circular ring of steel plate *bb*, screwed into the box, as shown in fig. 3. The ring enters a circular groove formed round the barrel, and thus confines it from having any other motion than a rotation on its axis, and this only by the aid of the key K, fig. 4. The barrel has a hole through its centre, which is closed at bottom by a circular plate screwed to it, and supporting the central pin G, which occupies the centre of the hole through the barrel; this centre pin guides the key in entering the lock. When the barrel E E is turned round by the key it shoots the bolt A, by an ingenious contrivance, explained in fig. 2, an aperture being cut through the plate B C to exhibit it. The plate F, on the lower end of the barrel E, has a pin *f* projecting from it: this pin enters a curved opening, at a small distance from the centre, and therefore describes a circle when the barrel is turned round, cut through the bolt A, as is shown by the dark curve F in fig. 2. In the position there shown the bolt is withdrawn, and the pin *f*, resting against the solid part of the groove, prevents the barrel being turned round any farther in the direction from F to *f*: but, by the application of the key, the barrel may be turned in the other direction, in which course it passes round in a circular part of the groove, and therefore produces no motion of the bolt A, until the pin *f* strikes the straight part *g* of the groove, and acts against it to throw the bolt forwards: and when the barrel has made a complete circuit, and the pin *f* is again come to the same position it was at first, the bolt is shot out as at fig. 1, and the pin is resting in the hollow *h*, which prevents its moving any further in the same direction. When the barrel is turned back again, the pin *f* acts against the notch *i*, and the curved part *k* of the groove, and withdraws the bolt into the position of fig. 2; now the pin *f*, either when the bolt is shot out or in, is in a right line with the centre of the barrel E, to which it is fixed, and the direction of the bolt’s motion. By this means no force whatever applied to drive back the bolt can have the least tendency to turn the barrel round, and strain the mechanism which prevents its motion, unless the parts are first put into a particular arrangement by the key.

The key has six notches cut in the end of it, and, being forced down into the key-hole H, depresses all the sliders at once, until the projecting leaf *t* of the key stops upon the bottom of the recess cut in the upper edge of the barrel. In this position the sliders are depressed, so that the notch made in each slider comes exactly opposite the steel ring *bb*, and the barrel is at liberty to turn round all the sliders, being by this means removed, or at least relieved from the steel ring, which embraces a groove cut round the barrel, but which cannot turn round thereat

unless the sliders are also moved by the key, that the notches cut in them may coincide with the groove cut round the barrel, and then it can turn freely round. The key, having thus relieved the barrel by being thrust in as far as it can go, obtains a hold of the barrel to turn it round, by the leaf *t* entering the recess, which it exactly fills up, so as to form a continuation of the circular top of the barrel: but, as soon as the key is turned round with the barrel a small quantity, its leaf is caught beneath the circular cavity in the top of the box *D*; and thus the key is prevented from being thrown out by the spiral spring, until it has been turned quite round, and locked or unlocked the bolt: then the leaf of the key coming opposite the enlargement *z*, fig. 1, of the key-hole *H*, the spring throws the key out, and raises all the sliders, that they may interlock with the steel plate *b b*, and prevent the barrel from turning, unless the key be again put in (its leaf being opposite the aperture *z* of the key hole), and, being thrust forwards as far as it will go, the barrel will turn round very easily; and, when it has made a complete circuit, the lock is opened, and the key thrown out of the key-hole by the spring.

The security of this ingenious lock from being picked, or opened by a false key, depends upon a circumstance not yet mentioned, which is, that the notches in the six sliders are so made, that every one requires to be depressed a different quantity to bring them all at once opposite the steel ring, in which position alone the barrel can be moved. For this reason the six notches in the key are all of different depths, correspondent to the positions of the notches in their respective sliders; and, unless each notch in the key is of the proper depth, the lock cannot be opened; for any one being too deep, that slider will not be pressed low enough to relieve the barrel, and will hold it fast, though all the others may be correct: on the other hand, any notch not being of sufficient depth, the slider it acts upon will be pressed too far, and in this case the notch in it, having passed by the steel ring, will lock the barrel as effectually as though it was not far enough. Thus this lock admits of an immense number of combinations: 1st, in the number of the sliders; 2dly, in the depths of the different notches in the key; and, 3dly, the arrangement of these sliders. The combination of these three changes admits such an immense number of varieties of locks, that it never need happen that two locks should be made to open by the same key. Any of Mr. Bramah's locks may be arranged so as to require a new and different key in case the original should be lost or stolen: for this purpose the lock must be opened, and the sliders taken out and changed into different grooves: a new key must now be made, with the grooves of the same depth as the original key, but arranged in a different order, corresponding with the new arrangement of the sliders. The old key will not now open the lock.

To pick a lock of this kind is perhaps impossible; because, though the sliders are exposed to the examination of any person, yet no information can be obtained of the depth of each of the sliders required to be depressed; for, unless they

are all together pressed down, the barrel cannot be turned in the least, and, without turning it, no guess can be made by pressing down any one slider of the depth at which the notch in it will be opposite the steel ring. Another great advantage of these locks is, that from the circumstance before explained, of the bolt having no action to turn the barrel, though the barrel has a great power to shoot the bolt, a strong lock may have but a very small key. For instance, the bolt of the lock is of great strength, while the key *K* is so small, that it may always be carried suspended to the watch chain, and then it will not be in danger of being lost or mislaid, as one may happen to lose a key, and give opportunity for ill disposed persons to make a false key from it, unknown to the owner.

Mr. Bullock's drawback lock for house doors, &c., will next engage our attention. The improvement consists in latching the door; for it is well known, particularly in damp weather, that the air drawing through it rusts the head or bevel of the bolt, by which means it requires great force to shut the door, and occasions a disagreeable noise, besides shaking the building. It has frequently happened that the house has been exposed to robbers from the door being left unlatched, when supposed to be fast. This improvement removes all these inconveniences, as it lets the bolt shoot into the staple immediately when the door closes, but not before; and the reliever works so very easy, that the door is made fast with $\frac{1}{4}$ th part of the force required with locks upon the common construction.

Mr. Bullock's lock is represented in fig. 5, where *A* is the new iron latch here affixed to an old common drawback house-lock. *B*, an iron pin at one end of the latch, on which pin it is moveable. *C*, a projecting part of the latch, which, when the common spring bolt *D* of the lock is drawn back, in the usual manner, is forced into the nick on its higher part at *E*, by the spring *F* underneath the latch. The bolt *D* then remains within the lock, until, on closing the door, the reliever *G* gently presses on the lock box, fixed in the common way on the door cheek; which pressure draws the projecting part *C* out of the nick *E*, and permits the end of the bolt *D*, by the force of the spring *G*, to slide into the lock-box, and fasten the door.

A lock invented by Mr. Stansbury, an American gentleman, has great merit. To explain it, we must suppose that a flat circular plate is fitted to turn round upon the centre-pin for the key, and that this plate, when turned round, shoots the bolt, which may be done by various means. The locking part consists of four, six, or more small steel pins, which are received in holes made very near each other, through both the circular turning plate, and the fixed plate beneath it. By these pins the circular plate is held fast from turning. The key has the same number of pins, and arranged in the same position and distance, as the pins in the plate. The key, being introduced, is pressed forwards against the circular plate, and turned round till the pins in it come over the pins in the circular plate, and the pressure of the hand forces the pins out of the circular plate, the pins in the key

occupying the place of them. The plate is now relieved, and the key has hold of the plate to turn it round and open the lock. Each pin is provided with a spring behind the fixed plate to force it forwards. The difficulty of making a false key to this lock is very great; as any error in the number, size, position, or length of the pins, will prevent it from opening the lock. To avoid the danger of impressions being taken, many marks are stamped upon the circular plate, which are exactly the same as the marks of the real pins: thus an impression taken from it would only mislead.

Mr. Stainsbury has also made an ingenious improvement upon the common spring door-lock. The handle which opens the spring catch for fastening the door, instead of requiring to be turned round, is made so that it withdraws the spring catch, by pushing the handle on one side of the door and pulling it on the other. This method is extremely convenient; for pressing the handle releases the lock, and continuing the pressure opens the door, and pulling the handle on the other side has the same effect. A person with his hands full may open such a door by only leaning against the handle.

Mr. Nicholson has invented a secret lock of more than 6000 combinations; it possesses the following requisites:—1. That certain portions of the lock are variable in position through a great number of combinations, only one of which will allow the lock to be opened or shut. 2. This last combination is variable at the pleasure of the possessor. 3. It is not possible, after the lock is closed and the combination disturbed, for any one, not even the maker himself, to discover by any examination what may be the proper situation of the parts required to open it. 4. Trials of this nature will not injure the work. 5. It requires no key. And 6. It is as easily opened in the dark as in the light. This lock consists of four wheels: and by adding a fifth the combinations would be increased to nearly 60,000.

It is well known that, in the usual way of arranging the levers of locks, it is necessary that they should ascend to their proper places before the bolt can pass; which arrangement gives an opportunity of introducing a nail, or a piece of stout wire, &c., into the lock, and thus raising the levers without the necessity of using the key. In Mr. Somerford's lock, for which he was rewarded by the Society of Arts, the arrangement has been changed; one lever being made to ascend, and the others to descend, before the bolt can be shot. These works may be put into all kinds of locks without increasing their bulk, and the bolt may be made to take on one side of the lock or on the other. The lower ascending lever has an iron plate attached to it, the use of which, besides receiving the key and thus bringing it down to its central place, is, that it stands as a complete guard in front of the riding lever which descends. The lever on the top of the bolt is also of a new construction, having the lower levers working in its racks, and refusing to let them pass till it is brought to its proper situation.

Fig. 6 is a front view of the lock, the upper

plate being removed; *aa* the bolt, having a longitudinal perforation, in each side of which are four notches opposite each other; *bb* a plate of brass fixed to the bolt by the pin and collet *c*, under which it freely moves; this plate has a perforation with four notches in the upper side, and three in the under, corresponding with the notches in the bolt, but deeper; *dd* a spring fixed to the side of the bolt acting on the protuberance *b* of the plate *bb*, and pressing it on one side, so as to prevent the notched perforation corresponding with that in the bolt. To move the bolt, the key must by its hook *l*, fig. 7, travelling in the groove *m* of the under plate *f*, pull the pin just out of the upper notch, and no more, while the front of the key, pushing the second plate *e*, moves its pin just out of the bottom notch, and no more; and now, the pins being even, the bolt is free of them, but is locked by its upper plate *bb* catching them in two of its upper notches; therefore the upper front of the key must raise this plate to make its perforation coincide exactly with that in the bolt, and then it is free.

The improved mortise lock, contrived by Messrs. T. and S. Smith, of Darnick, is represented in fig. 8. *A* is the spring-bolt, cranked inside to avoid the key of the lock-bolt, and to bring its nose and tail into the same line. *B* the tumbler or follower, of hardened steel, made to work upon the beech *CC*, which is of brass, and fixed to the bell by the tenon, *DD*. *E* a piece of brass, with an oblong hole through it, to admit of the tail *F* working through it, to keep the bolt in its proper place, and diminish the friction. The spring *G*, and player *H*, are brought to the fore end of the lock, which allows it to be narrowed at the other end.

In the lock-bolt and night-bolt there is little difference from the common lock. The advantages of a lock constructed upon this plan are the following: viz.

1. It is less bulky than the common lock, easier put on, and does not weaken the door so much.

2. There is less friction in the spring being placed to draw the bolt, than in pushing, as in the common lock. The slide *at* *F* also contributes much to diminish the friction.

3. It works with perfect equality whichever way the handle is turned, from the tumbler being placed exactly in the line of the centre of the bolt; which it is evident the common lock can never do, from the tumbler being placed so far from the bolt. In the common lock there is a difference, in most cases, of between thirty and forty per cent. between the turns of the handle, which is the reason of the bolt coming readily back when the handle is turned the one way, and often sticking fast when turned the other way.

LOCKE (John), F. R. S., was the son of John Locke of Pensford in Somersetshire; was born at Wrington near Bristol in 1633; was sent to Christ Church in Oxford, and became acquainted with the works of Des Cartes which first attracted his attention to philosophy. He applied himself with vigor to his studies, particularly to physic, in which he gained a con-

siderable knowledge, though he never practised it. In 1694 he went to Germany as secretary to Sir William Swan, envoy from the English court to the elector of Brandenburg, and some other German princes. In 1695 he returned to Oxford, where he applied himself to natural philosophy, and became acquainted with lord Ashley, who introduced him to some of the most eminent persons of that age. In 1670 he began to form the plan of his *Essay on Human Understanding*. About this time he became F. R. S. In 1672 his patron, lord Ashley, now earl of Shaftesbury, and lord chancellor of England, appointed him secretary of the presentations. In 1673 he was made secretary to a commission of trade, worth £500 a year; but that commission was dissolved in 1674. The earl of Shaftesbury, after his discharge from the Tower, retired to Holland in 1682, and Mr. Locke followed his patron thither. He had not been absent from England a year, when he was accused of having written certain tracts against the government, which were afterwards discovered to have been written by another; and in November 1684 he was deprived of his place of student in Christ Church. In 1685 the English envoy at the Hague demanded him and eighty-three other persons to be delivered up by the States General, upon which he lay concealed till 1686; and during this time formed an acquaintance with Lamborch, Le Clerc, and some few other learned men at Amsterdam. In 1689 he returned to England in the fleet which brought over the princess of Orange. Being esteemed a sufferer for the principles of the revolution, he obtained the post of commissioner of appeals, worth £200, and was offered to be sent abroad as envoy at the court of the emperor, the elector of Brandenburg, or any other where he thought the air most suitable to him: but he waived all these, on account of the infirm state of his health; which led him to prefer an offer made by Sir Francis Masham and his lady, of an apartment in their country seat at Oates, in Essex, twenty-five miles from London. This place proved perfectly agreeable to him in every respect. He found in lady Masham a lady of a contemplative and studious turn, injured from her infancy to deep speculations in theology, metaphysics, and morality. In this family Mr. Locke lived with as much ease as if the whole house had been his own; and he had the additional satisfaction of seeing this lady bring up her only son exactly upon the plan which he had laid down for the best method of education. He was made a commissioner of trade and plantations in 1695, which engaged him in the immediate business of the state. With regard to the church, he published a treatise the same year, to promote the scheme which king William had much at heart, of a comprehension with the dissenters. This, however, drew him into a controversy: which was scarcely ended, when he entered into another, in defence of his essay, which continued till 1698: soon after which, the asthma increasing with his years, he became so infirm, that, in 1700, he resigned his seat at the board of trade, as he could no longer bear the air of London sufficiently for a regular attendance upon it. After this he con-

tinued constantly at Oates, where he employed the remaining years of his life entirely in the study of the Holy Scriptures. He died in 1704, aged seventy-three. Whoever is acquainted with the barbarous state of the philosophy of the human mind, when Mr. Locke paved the way to a clear notion of knowledge, will be able to appreciate this great man's abilities; and discover how

provements that have since been made. His *Discourses on Government*, *Letters on Toleration*, and his *Commentaries on some of St. Paul's Epistles*, are justly held in the highest esteem.

LOCK'RAM, *n. s.* From lock, twisted hair
A sort of coarse linen.

LOCOMOTION, *n. s.* } *Lat. locus, motus.*
LOCOMOTIVE, *adj.* } Power of changing
place.

LOCOMOTION. The chief obstacles which oppose locomotion, or change of place, are gravity and friction, the last of which is, in most cases, a consequence of the first. Gravity confines all terrestrial bodies against the surface of the earth, with a force proportionate to the quantity of matter which composes them. Most kinds of mechanism, both natural and artificial, which assist locomotion, are arrangements for obviating the effects of gravity and friction. Animals that walk, obviate friction by substituting points of their bodies instead of large surfaces, and upon these points they turn, as upon centres, for the length of each step, raising themselves wholly or partly from the ground in successive arcs, instead of drawing themselves along the surface. As the feet move in separate lines, the body has also a lateral, vibratory motion. A man, in walking, puts down one foot before the other is raised, but not in running. Quadrupeds, in walking, have three feet upon the ground for most of the time; in trotting, only two. Animals which walk against gravity, as the common fly, the tree-toad, &c., support themselves by suction, using cavities on the under side of their feet, which they enlarge at pleasure, till the pressure of the atmosphere causes them to adhere. In other respects their locomotion is effected like that of other walking animals. Birds perform the motion of flying by striking the air with the broad surface of their wings in a downward and backward direction, thus propelling the body upward and forward. After each stroke, the wings are contracted, or slightly turned, to lessen their resistance to the atmosphere, then raised, and spread anew. The downward stroke also, being more sudden than the upward, is more resisted by the atmosphere. The tail of birds serves as a rudder to direct the course upward or downward. When a bird sails in the air without moving the wings, it is done in some cases by the velocity previously acquired, and an oblique direction of the wings upward; in others, by a gradual descent, with the wings slightly turned, in an oblique direction, downward. Fishes, in swimming forward, are propelled chiefly by strokes of the tail, the extremity of which, being bent into an oblique position, propels the body forward and laterally at the same time. The lateral motion is corrected

by the next stroke, in the opposite direction, while the forward course continues. The fins serve partly to assist in swimming, but chiefly to balance the body, or keep it upright; for, the centre of gravity being nearest the back, a fish turns over, when it is dead or disabled. Some other aquatic animals, as leeches, swim with a sinuous or undulating motion of the body, in which several parts at once are made to act obliquely against the water. Serpents, in like manner, advance by means of the winding or serpentine direction which they give to their bodies, and by which a succession of oblique forces are brought to act against the ground. Sir Everard Home is of opinion that serpents use their ribs in the manner of legs, and propel the body forwards by bringing the plates on the under surface of the body to act, successively, like feet against the ground. This he deduces from the anatomy of the animal, and from the movements which he perceived in suffering a large coluber to crawl over his hand. Some worms and larvæ of slow motion, extend a part of their body forwards, and draw up the rest to overtake it, some performing this motion in a direct line, others in curves. When land animals swim in water, they are supported, because their whole weight, with the lungs expanded with air, is less than that of an equal bulk of water. The head, however, or a part of it, must be kept above water, to enable the animal to breathe; and to effect this, and also to make progress in the water, the limbs are exerted, in successive impulses, against the fluid. Quadrupeds and birds swim with less effort than man, because the weight of the head, which is carried above water, is, in them, a smaller proportional part of the whole than it is in man. All animals are provided, by nature, with organs of locomotion best adapted to their structure and situation; and it is probable that no animal, man not being excepted, can exert his strength more advantageously by any other than the natural mode, in moving himself over the common surface of the ground. Thus walking cars, velocipedes, &c., although they may enable a man to increase his velocity, in favorable situations, for a short time, yet they actually require an increased expenditure of power, for the purpose of transporting the machine made use of, in addition to the weight of the body. When, however, a great additional load is to be transported with the body, a man, or animal, may derive much assistance from mechanical arrangements. For moving weights over the common ground, with its ordinary asperities and inequalities of substance and structure, no piece of inert mechanism is so favorably adapted as the wheel-carriage. It was introduced into use in very early ages. Wheels diminish friction, and also surmount obstacles or inequalities of the road, with more advantage than bodies of any other form, in their place, could do. The friction is diminished by transferring it from the surface of the ground to the centre of the wheel, or, rather, to the place of contact between the axletree and the box of the wheel; so that it is lessened by the mechanical advantage of the lever, in the proportion which the diameter of the axletree bears to the

diameter of the wheel. The rubbing surfaces, also, being kept polished and smeared with some unctuous substance, are in the best possible condition to resist friction. In like manner, the common obstacles that present themselves in the public roads, are surmounted by a wheel with peculiar facility. As soon as the wheel strikes against a stone or similar hard body, it is converted into a lever for lifting the load over the resisting object. If an obstacle eight or ten inches in height were presented to the body of a carriage unprovided with wheels, it would stop its progress, or subject it to such violence as would endanger its safety. But by the action of a wheel, the load is lifted, and its centre of gravity passes over in the direction of an easy arc, the obstacle furnishing the fulcrum on which the lever acts. Rollers placed under a heavy body diminish the friction in a greater degree than wheels, provided they are true spheres or cylinders, without any axis on which they are constrained to move; but a cylindrical roller occasions friction, whenever its path deviates in the least from a straight line. The mechanical advantages of a wheel are proportionate to its size, and the larger it is, the more effectually does it diminish the ordinary resistances. A large wheel will surmount stones and similar obstacles better than a small one, since the arm of the lever on which the force acts is longer, and the curve described by the centre of the load is the arc of a larger circle, and, of course, the ascent is more gradual and easy. In passing over holes, ruts, or excavations, also, a large wheel sinks less than a small one, and consequently occasions less jolting and expenditure of power. The wear also of large wheels is less than that of small ones, for if we suppose a wheel to be three feet in diameter, it will turn round twice, while one of six feet in diameter turns round once; so that its tire will come twice as often in contact with the ground, and its spokes will twice as often have to support the weight of the load. In practice, however, it is found necessary to confine the size of wheels within certain limits, partly because the materials used would make wheels of great size heavy and cumbersome, since the separate parts would necessarily be of large proportions to have the requisite strength, and partly because they would be disproportioned to the size of the animals employed in draught, and compel them to pull obliquely downwards, and therefore to expend a part of their force in acting against the ground.

LOCOMOTIVE ENGINE, is that which is calculated to produce locomotion, or motion from place to place. See STEAM ENGINE.

LOCRI, or LOCRI EPIZEPHYRII, in ancient geography, a town of the Brutii, on the Ionian Sea; a colony of the Locri Ozolæ (Strabo); or rather of the Epicnemidii, according to Virgil, who calls it Narycii Locri, from Naryx, a town of the Locri Epicnemidii. The epithet Epizephyrii is from its situation near the promontory Zephyrium. (Strabo.)

LOCRI, or LOCRENSES, the people of Locri. They are said to have been the first who used a code of written laws, compiled by Zaleucus from the laws of the Cretans, Lacedæmonians, and the

Areopagite, adding an express penalty to each law, which was before discretionary, at the option of the judge. (Strabo.) Adultery was punished with the loss of both eyes. Zaleucus's own son being convicted of this crime, in order to maintain the authority of the law, and at the same time to pay some regard to the intercession of the people in favor of his son, Zaleucus suffered the loss of one eye, his son losing another. (Ælian, Val. Maximus.)

LOCRI, a country of Achaia, in Greece; twofold, and divided by mount Parnassus into

LOCRI CITERIOR, occupied by the Locri Ozole, or Zephyrii, i. e. Western Locri, contained between Ætolia and Phocis, beginning at Naupactum, and running in a narrow slip of land, scarcely 200 stadia, along the sea, to the borders of the Phocenses; and **LOCRI** ULTERIOR, which lay beyond Parnassus, running out towards Thermopylæ, and reaching to the Euripus of Eubœa; occupied by the Locrii Opuntii, who dwelt on the Eubœan Sea; and the Locri Epicnemidii, who occupied mount Cnemis (Strabo); and these two were the Eastern Locri.

LOCULAMENTA, and **LOCULI**, in botany, cells or pockets. The internal divisions of a capsule, or other dry seed-vessel. These cells contain the seeds, and differ in number in different plants.

LOCULUS is also sometimes used to express the minute divisions in some species of antheræ, which contain the fine impalpable powder, supposed by the sexualists to be the principal agent in the generation of plants.

LOCUS, **GEOMETRICUS**, a line by which a local or indeterminate problem is solved. Thus if a right line suffice for the construction of the equation, it is called locus ad rectum; if a circle, locus ad circulum; if a parabola, locus ad parabolam; if an ellipsis, locus ad ellipsin; and so of the rest of the conic sections.

LOCUST, *n. s.* Lat. *locusta*. A species of **GRYLUS**, which see.

To-morrow will I bring the locusts into thy coasts.

Exodus.

Nothing now is left him, but a bare fruitless earth to live upon, and that covered over with locusts.

Bp. Hall.

LOCUST, in zoology. See **GRYLUS**.

LOCUST, in botany. See **CERATONIA**.

LOCUST TREE. See **GLEDITSIA**, **HYMENÆA**, and **ROBINIA**.

LOCUTORIUM. The monks and other religious in monasteries, after they had dined in their common hall, had a withdrawing-room, where they met and talked together among themselves; which room, from that sociable use and conversation, they called locutorium (from loquor, to speak), as we call such a place in our houses parlour, from the French parler; and they had another room which was called locutorium forinsecum, where they might converse with laymen.

LODEVE, a town of France, on the Lergues, in the department of the Herault. Its streets are narrow, it has, however, flourishing manufactures of silk stuffs, cloth, hats, oil, and wine. It was the birth-place of cardinal Fleury. During the war it supplied a great part of the clothing

of the French army. Population 8000. Twenty-nine miles west of Montpellier.

LODGE, *v. a. v. n. & n. s.*

LODGEMENT,

LODGER,

LODGING.

Saxon, *logian*; Mæso-Goth. *lagan*, to lay; Fr. *loger*. To place;

deposit for a time; lay flat; afford an abode; temporary or settled; to settle; fix: as a verb neuter, to reside; take up an abode for the night, or generally: a lodge is a small appendant abode: lodgement, collocation, disposition, or collection of things in a place: lodger, one who hires his lodging, or lives in hired rooms; one who resides in a particular place: lodging has the same temporary and general application as lodger.

Thy father is a man of war, and will not lodge with the people. *Samuel.*

Oh, that I had in the wilderness a lodging place of wayfaring man, that I might leave my people!

Jeremiah.

My lords

And soldiers, stay and lodge by me this night.

Shakspeare.

Every house was proud to lodge a knight.

Dryden.

At night he came

To his known lodgings, and his country dame.

Id.

He lodged an arrow in a tender breast,
That had so often to his own been prest.

Addison.

LODGE (Thomas), M.D., an English physician and poet of the seventeenth century. He was educated at Oxford, but graduated at Avignon. He settled in London, and obtained great practice among the Roman Catholics, as he was of that communion. He wrote two plays; viz. *Wounds of Civil War*, a tragedy; and, *A Looking-Glass for London*, a tragi-comedy; and assisted R. Green in some others. He died in 1625.

LODGEMENT, in military affairs, a work made by the besiegers in some part of a fortification (after the besieged have been driven out), to maintain it, and be covered from the enemy's fire. When a lodgement is to be made on the glacis, covert-way, or in a breach, there must be a great provision made of fascines, sand-bags, gabions, wool-packs, &c., in the trenches; and, during the action, the pioneers, under the direction of an engineer, with fascines, sand-bags, &c., should be making the lodgement, in order to form a covering, while the grenadiers are storming the covert-way.

LODI, a province of Austrian Italy, in the government of Milan, surrounded by the grand duchy of Parma, and the delegations of Pavia, Milan, Bergamo, and Cremona. Its extent is 390 square miles. Pasturage is the chief object of agriculture; and it is in this district that Parmesan cheese is chiefly made. Population 141,000.

LODI, a considerable town of Austrian Italy, the capital of the above delegation, stands on the Adda, over which there is a wooden bridge of 600 feet in length. It is regularly and well built. One of its public squares contains a number of very superior buildings. The cath-

dral and convents claim the attention of the traveller: the most remarkable church is that called dell' Incononata, built by the celebrated Bramante, and painted partly in fresco, and partly in oil, by Callisto, a pupil of Titian. Here are manufactures both of silk and porcelain, and some considerable trade. Its chief export is the cheese made in the environs. Lodi is surrounded with walls, and stands high. Buonaparte's early military career was here distinguished, in 1796, by his forcing with the bayonet the passage of the bridge, though defended by 10,000 Austrians. Population 12,500. Sixteen miles north-east of Pavia, and seventeen south-east of Milan.

LODRONE, a town of Italy, in the bishopric of Trent, near which a bloody battle was fought, on the 12th of August, 1796, between the French and Austrians, wherein the latter were defeated. It is seated at the influx of the Chiese into Lake Idro.

LOEFFORT, an island of the North Sea, on the coast of Norway, a little north of the Maelstrom.

LOEVESTEIN, or LOWENSTEIN, a fortress of the Netherlands, in Guelderland, at the western point of the island of Bommelwaert, and eighteen miles E.S.E. of Rotterdam.

LOFFT (Capel), esq., barrister-at-law, was the son of Christopher Lofft, also a barrister, who resided in Carey Street, Fleet Street, where this his second son was born, in November, 1751. He distinguished himself at Eton, where he was placed in 1759, by several elegant compositions, and proceeded in 1769 to Peterhouse, Cambridge. Here he had the reputation of being a sound classical scholar; but his deficiency in mathematical knowledge lost him the Craven scholarship. His praise of Shakspeare in a Latin poem in hexameters, published as a tripos, March 1st, 1770, inspired Garrick with so great an interest in him, that to the exertions of that actor may be attributed the reconciliation, with some branches of his family, which eventually secured his succession to the Capel estates. He entered himself at Lincoln's Inn 1770, and, under the superintendence of his father, proceeded to qualify himself for the bar, to which he was called in Michaelmas term, 1755; having, in the mean time, published the Praises of Poetry; and Timoleon, a tragedy; both of which appeared in 1775. He also now commenced the study of the Hebrew and Saxon languages. He published in 1776 a collection of Cases, chiefly in the king's bench, from 1772 to 1774, with a Latin list of law maxims. The latter maxims he afterwards printed in an enlarged shape, in two volumes, under the title of Principia cum Juris Universalis tum præcipue Anglicani; with a translation, called Elements of Universal Law; about the same period he also wrote several political tracts on the subject of the American war. Succeeding to the Capel estates, in 1781, he removed to Troston, in Suffolk; and became an active magistrate for the county till 1800; when having unduly, as it was thought, exerted himself as under sheriff, to delay the execution of a young woman who had received sentence of death, Mr. Lofft was removed from the commis-

sion. In 1810 he became deputy recorder of Aldborough; but, conceiving that great facilities were afforded for the education of his family on the continent, he in 1816 proceeded to Brussels, and thence to Lausanne, Turin, and Montcallier; at which latter place he died, May 26th, 1824. Besides a variety of political pamphlets, Mr. Lofft was the author of Davideis, an imperfect poem in blank verse; Eudisia, a poem in blank verse, 1780; a Translation of the first two Georgics of Virgil, 1784; an Essay on the Law of Libel, 1785; an edition of Gilbert's Law of Evidence, with considerable additions, 2 vols. 8vo., 1792; Laura, or an Anthology of Sonnets, in 5 vols. 1814; and a volume of Aphorisms, from Shakspeare. He was a very considerable contributor also to most of the magazines of his day; and it was to his zealous patronage the public was, in a great measure, indebted for the publication of the Farmer's Boy, by Robert Bloomfield. Mr. Lofft married twice, and left a son and daughter by his first wife.

LOFODEN, a group of islands on the coast of Norway, lying between 67° 30' and 68° 45' of N. lat. They consist of five large and several smaller islands, having in all about 4000 inhabitants. Their lofty mountains are covered with perpetual snow. During the winter they are visited by boats, manned with perhaps 20,000 fishermen; and the value of the fish taken has been estimated at £12,000.

LOFT, *n. s.* From LIFT, which see.
LOFTY, *adj.* } A high or elevated place;
LOFTILY, *adv.* } the upper room or floor of
LOFTINESS, *n. s.* } a building. Lofty is high; towering, elevated in place, condition, true dignity or temper; proud.

Eutychus fell down from the third loft. *Acts.*
See lofty Lebanon his head advance,
See nodding forests on the mountains dance.

Pope.

Augustus and Tiberius had loftiness enough in their temper, and affected to make a sovereign figure. *Collier.*

They speak wickedly concerning oppression: they speak loftily. *Psaln lxxiii. 8.*

LOG, *n. s.* Sax. liggan, to lie.—
LOGGERHEAD, *n. s.* } Skinner. Goth. *log*,
LOGGERHEADED, *adj.* } *lag*. That which is laid
LOG'MAN, *n. s.* } or placed.—Thomson.
Belg. *logge*, heavy; lumpish. A mass of wood; a block; a dolt or blockhead. Loggerhead is also synonymous with blockhead. To go or fall to loggerheads, to scuffle; to bring two or more thick skulls into collision. Loggerheaded, stupid; thick-skulled; doltish. Logman, one who carries or transports logs from place to place.

Would the lightning had
Burnt up those logs that thou'rt enjoined to pile. *Shakspeare.*

For your sake

Am I this patient logman. *Id.*
Some log, perhaps upon the water swam,
An useless drift, which rudely cut within,
And hollowed, first a floating trough became,
And cross some riv'let passage did begin. *Dryden.*

Says this loggerhead, what have we to do to quench
other people's fires? *L' Estrange.*

The ship still lay
Like a mere log, and baffled our intent.

Byron.

LOG, *n.s.* Heb. 17. The smallest measure of capacity among the Jews (about three-fourths of a pint).—Parkhurst. Arbutnot says the seventy-second part of the boll or ephah, and twelfth part of the hin.

A meat offering mingled with oil, and one *log* of oil. Lev.

Log, in the Jewish antiquities, is mentioned (2 Kings vi. 25) as the fourth part of a cab. But in Leviticus the word *log* is often met with, and signifies that measure of oil which lepers were to offer at the temple after they were cured of their disease.

Log, a sea term, signifying a small piece of timber, of a triangular, sectoral, or quadrantal figure, on board a ship, generally about a quarter of an inch thick, and five or six inches from the angular point to the circumference. It is balanced by a thin plate of lead, nailed upon the arch, or circular side, so as to swim perpendicularly in the water, with about two-thirds immersed under the surface.

LOG AND LINE, or the LOG-LINE, a little cord, or line, about 150 fathoms long, fastened to the log by means of two legs, one of which passes through a hole at the corner, and is knotted on the opposite side, while the other leg is attached to the arch by a pin fixed into another hole, so as to draw out occasionally. By these legs the log is hung in equilibrio; and the line thus annexed to it is wound round a reel fixed for that purpose in the gallery of the ship. This line, from the distance of about ten, twelve, or fifteen fathoms off the log, has certain knots or divisions, which ought to be at least fifty feet from each other; though it was the common practice at sea not to have them above forty-two feet asunder. The length of each knot ought to be the same part of a sea-mile as half a minute is of an hour; and admitting the measurement of Mr. Norwood, who makes a degree on a great circle of the earth to contain 367,200 English feet, or about sixty-nine English statute miles and a half, and, therefore, one-sixtieth part of it, or a nautical mile, will be 6120 feet; $\frac{1}{60}$ th of 6120, or fifty-one feet, should be the length of each knot. But, because it is safer to have the reckoning rather before the ship than after it, therefore fifty feet may be taken as the proper length of each knot. The knots are sometimes made to consist only of forty-two feet each, even in the present practice; and this method of dividing the log-line was founded on the supposition that sixty miles, each of 5000 English feet, made a degree; for $\frac{1}{60}$ th of 5000 is forty-one and two-thirds, or, in round numbers, forty-two feet. Mariners, rather than quit the old way, though known to be erroneous, use glasses for half minute ones, that run but twenty-four or twenty-five seconds. They have also used a line of forty-five feet to thirty seconds, or a glass of twenty-eight seconds to forty-two feet. When this is the case, the distance between the knots should be corrected by the following proportion: as thirty is to fifty, so is the number of seconds of the glass to the distance between the knots upon the line. The heat or moisture of the weather

has often a considerable effect upon the glass, so as to make it run slower or faster; it should therefore be frequently tried by the pendulum in the following manner:—On a round-nail hang a string that has a musket-ball fixed to one end, carefully measuring between the centre of the ball and the string's loop over the peg thirty-nine inches and an eighth, being the length of a second pendulum; then swing it, and count one for every time it passes under the peg, beginning at the second time it passes; and the number of swings made during the time the glass is running out shows the seconds it contains. The line also is liable to relax and shrink, and should therefore be occasionally measured. The use of the log and line is to keep account, and make an estimate of the ship's way or distance run; which is done by observing the length of the line unwound in half a minute's time, told by a half-minute glass; for so many knots as run out in that time, so many miles the ship sails in an hour. Thus, if there be four knots veered out in half a minute, the ship is computed to run four miles an hour. No mention of this device for measuring the ship's way occurs till 1607, in an East India voyage published by Purchas; but from that time its name occurs in other voyages among his collections; and henceforward it became famous, being taken notice of both by our own authors and by foreigners; as by Gunter in 1623; Snellius in 1624; Metius in 1631; Oughtred in 1633; Herigone in 1634; Saltonstall in 1636; Norwood in 1637; Pournier in 1643; and by almost all the succeeding writers on navigation of every country.

LOG, HEAVING THE, is throwing it into the water on the lee-side, letting it run till it comes without the eddy of the ship's wake; then one, holding a half-minute glass, turns it up just at the first knot, or the mark from which the knots begin to be reckoned, turns off the reel, or passes over the stern. As soon as the glass is out the reel is stopped, and the knots run off are told, and their parts estimated. It is usual to heave the log once every hour in ships of war and East-Indiamen, and in all other vessels once in two hours; and if at any time of the watch the wind has increased or abated in the intervals, so as to affect the ship's velocity, the officer generally makes a suitable allowance for it at the close of the watch. The log is a very precarious way of computing, and must always be corrected by experience; there being a great deal of uncertainty in the yawing of the ship, going with the wind aft, or upon the quarter, in the heaving of it, by its coming home, or being drawn after the ship; on account of the friction of the reel and lightness of the log in the course of the current, and in the strength of the wind, which seldom keeps the same tenor for two hours together, which is the interval between the times for using the log in short voyages, though in longer ones they heave it every hour. Yet this is a much more exact way of computing than any other in use; much preferable certainly to that of the Spaniards and Portuguese, who guessed at the ship's way by the running of the froth or water by the ship's side; or to that of the Dutch, who used to heave a chip overboard, and to number the paces they

walk on the deck while the chip swims between any two marks or bulk-heads on the side.

LOG, THE COMPOUND. The above mentioned errors, and particularly the log's being subject to drive with the motion which the water may have at its surface, whereas the experiment requires it to be fixed in the place where it is when the mark commencing the knots goes off the reel, have been considered by writers, and many methods have been proposed to remove, or at least to lessen them. The late M. Bouguer proposed a method, which has been thought deserving of particular attention, in the *Mem. Acad. Sc.* 1747; afterwards in his *Treatise on Navigation*, published at Paris in 1753, and since reprinted in 1760, by the abbé de la Caille. For this purpose, take for the log a conical piece of wood, which fix to the log-line passed through or along its axis, at about forty, fifty, or sixty, or more feet, from one end; and to this end fix the diver, which is a body formed of two equal square pieces of tin, or of thin iron plate, fixed at right angles to one another along their diagonals; and its size so fitted to that of the cone that the whole may float. A cone of three inches diameter in the base, and of six inches in the slant height, is proposed by M. Bouguer to suit a diver made of plates about nine inches and three quarters square; the intersection of the diagonals is joined to the log-line, and the loop and peg fixed as in the common log. However, it has been found, that no kind of wood used in British dock-yards, when formed into a cone of the above dimensions, will float a diver made of stout tin plates, one side of the square being nine inches and three quarters. Such a diver, weighing one pound fourteen ounces avoirdupois, required to float it a cone of five inches diameter and twelve inches on the slant side, so as the point of the cone, which was made of light fir, should just appear above the water. Now supposing one side of such a square tin diver to be about ten inches, and made of plates only two-thirds of the thickness of the former, such a diver would weigh, with its solder, about twenty ounces, and can be floated by a light fir cone of four inches diameter in the base, and ten inches in the slant height or length; and such a compound log might perhaps be found on trial to be affected by about as much again as that proposed by M. Bouguer; and consequently the difference between the numbers given by the common log and compound log, must be augmented by two-thirds of itself for the necessary correction, as below. When the compound log of Bouguer, above described, is hove overboard, the diver will sink too deep to be much affected by the current or motion of water at the surface, and the log will thereby keep more steadily in the place where it first fell; and consequently the knots run off the reel will show more accurately the ship's rate of sailing. As the common log is affected by the whole motion of the current, so this compound log will feel only a part thereof, viz. such a part nearly as the resistance of the cone is to the resistance of the diver; then the resistances of the above cone and diver are about as one to five; and consequently this log will drive but one-fifth part of what the common

log would do; and so the ship's true run will be affected by one-fifth only of the motion of the waters. To obtain the true rate of sailing, it will be proper to heave alternately, hour and hour, the common log and this compound log; then the difference of their knots run off, augmented by its fourth part, is the correction; which, applied to the knots of the common log, will give the ship's true rate of sailing at the middle time between the hours when these logs were hove. The correction is additive when the compound log's run is the greatest, otherwise it is subtractive. To find the course made good: increase the observed angle between the log-lines by one fourth part; and this gives the correction to be applied to the apparent course, or the opposite of that shown by the common log; the correction is to be applied to the right of the apparent course, when the bearing of the common log is to the left of the compound log; and vice versa, to the left, when the bearing is to the right of it. Or thus: the lengths run off both logs, together with their bearings, being known; in a card or compass apply the knots run off, taken from a scale of equal parts, along their respective bearings, from the centre; join the ends; and in this line produced, on the side next the compound log's length, take one-fourth of the interval; then a line drawn from the end, thus produced, to the centre of the card, will show the true course and distance made good. When a current, such as a tide, runs to any depth, the velocity of that current may be much better ascertained by the compound log than by the common one, provided the diver does not descend lower than the run of the current; for, as those ships which are deepest immersed drive fastest with the tide, so the diver, by being acted on below, as well as the log on the surface, their joint motion will give the total effect of the current's motion better than could be had from the motion at the surface only. Also, by such a compound log, the depth to which any current runs may be easily tried.

We have an account, in the *Voyage to the North pole*, p. 97, of two other logs, which were tried by captain Phipps; one invented by Mr. Russel, the other by Foxon; both constructed upon this principle, that a spiral, in proceeding its own length in the direction of its axis through a resisting medium, makes one revolution round the axis; if, therefore, the revolutions of that spiral are registered, the number of times it has gone its own length through the water will be known. In both these the motion of the spiral in the water is communicated to the clock-work within-board, by means of a small line fastened at one end to the spiral, which tows it after the ship, and at the other to a spindle, which sets the clock work in motion. That invented by Mr. Russel has a half spiral of two threads, made of copper, and a small dial with clock-work, to register the number of turns of the spiral. The other log has a whole spiral of wood with one thread, and a larger piece of clock-work with three dials, two of them to mark the distance, and the other divided into knots and fathoms, to show the rate by the half-minute glass, for the convenience of comparing it with the log. This kind of log

will have the advantage of every other in smooth water and moderate weather; and it will be useful in finding the trim of a ship when alone, in surveying a coast in a single ship, or in measuring distances in a boat between head-lands and shoals: but it is subject to other inconveniences, which will not render it a proper substitute for the common log. See NAVIGATION.

* LOGAN, a chief among the Mingo tribe of the North American Indians, whose pathetic address to lord Dunmore, governor of Virginia, has been much and justly admired. The occasion was as follows; and the authenticity of the narrative is unquestionable. In spring, 1774, a robbery and murder were committed on an inhabitant of the frontiers of Virginia by two Indians of the Shawanee tribe. The neighbouring whites, according to custom, undertook to punish this outrage in a summary way. Colonel Cresap, a man infamous for the many murders he had committed on that much-injured people, collected a party, and proceeded down the Kanhaway in quest of vengeance. Unfortunately a canoe of women and children, with one man only, was seen coming from the opposite shore, unarmed, and unsuspecting any hostile attack from the whites. Cresap and his party concealed themselves on the bank of the river; and, the moment the canoe reached the shore, singled out their objects, and at one fire killed every person in it. This happened to be the family of Logan, who had long been distinguished as a friend of the whites. This unworthy return provoked his vengeance. He accordingly signalled himself in a war which ensued. In autumn, 1774, a decisive battle was fought at the mouth of the Great Kanhaway, between the collected forces of the Shawanees, Mingoes, and Delawares, and a detachment of the Virginia militia. The Indians were defeated, and sued for peace. Logan disdained to be seen among the suppliants; but, lest the sincerity of a treaty should be distrusted, from which so distinguished a chief absented himself, he sent by a messenger the following speech, to be delivered to lord Dunmore: 'I appeal to any white man to say if ever he entered Logan's cabin hungry, and he gave him not meat; if ever he came cold and naked, and he clothed him not. During the course of the last long and bloody war Logan remained idle in his cabin, an advocate for peace. Such was my love for the whites, that my countrymen pointed as they passed, and said, Logan is the friend of white men. I had even thought to have lived with you, but for the injuries of one man. Colonel Cresap, the last spring, in cold blood, and unprovoked, murdered all the relations of Logan, not sparing even my women and children. There runs not a drop of my blood in the veins of any living creature. This called on me for revenge. I have sought it; I have killed many; I have fully glutted my vengeance. For my country, I rejoice at the beams of peace; but do not harbour a thought that mine is the joy of fear. Logan never felt fear. He will not turn on his heel to save his life. Who is there to mourn for Logan? Not one.'

LOGAN (John), D. D., late a clergyman of the church of Scotland, author of several works of

merit. He was born in Mid Lothian about 1748; studied divinity at the university of Edinburgh, and was ordained minister of South Leith, in 1770. In 1781 he published his Philosophy of History, the substance of which had been delivered in his public lectures at Edinburgh, with great approbation. He also published his Poems, which underwent a second edition in 1782. In 1783 he wrote Runnameda, a tragedy, which he offered to the manager of Covent-garden theatre; but as the lord chamberlain did not approve of the political sentiments displayed in it, a license was refused, though it was afterwards acted at Edinburgh with much applause. His last work was A Review of the Principal Charges against Mr Hastings. Mr Logan died in London in 1788. Two volumes of his Sermons were published after his death.

LOGARITHMIC LINES. For many mechanical purposes it is convenient to have the logarithms of numbers laid down on scales, as well as the logarithmic sines and tangents; by which means computations may be carried on by mere mensuration with compasses. Lines of this kind are always put on the common Gunter's scale; but as these instruments must be extended to a very great length, in order to contain any considerable quantity of numbers, it becomes an object of importance to shorten them. Such an improvement has been made by Mr. William Nicholson, and published in the seventy-seventh volume of the Philosophical Transactions. The principles on which the construction of his instruments depends are as follow: I. If two geometrical series of numbers, having the same common ratio, be placed in order with the terms opposite to each other, the ratio between any term in one series and its opposite in the other will be constant: Thus,

	2	6	18	54	162, &c.
	3	9	27	81	243, &c. Then,
2	3	6	9	18	27 54 81 162 243, &c.

where it is evident that each of the terms in the upper series is exactly two-thirds of the corresponding one in the lower. II. The ratio of any two terms in one series will be the same with that between those which have an equal distance in the other. III. In all such geometrical series as have the same ratio the property above mentioned takes place, though we compare the terms of any series with those of another: Thus,

{	2	4	8	16	32	64, &c.
{	3	6	12	24	48	96, &c.
{	4	8	16	32	64	128, &c.
{	5	10	20	40	80	160, &c.

where it is plain that 2, 4, 3, 6; also 2, 4, 4, 8, and 2, 4, 5, 10, &c., have the same ratio with that of each series. IV. If the differences of the logarithms of the numbers be laid in order upon equidistant parallel right lines, in such a manner that a right line drawn across the whole shall intersect it at divisions denoting numbers in geometrical progression; then, from the condition of the arrangement, and the property of this logarithmic line, it follows, 1st, That every right line so drawn will, by its intersections, indicate a geometrical series of numbers; 2dly,

That such series as are indicated by these right lines will have the same common ratio; and, 3dly, That the series thus indicated by two parallel right lines, supposed to move laterally, without changing either their mutual distance or parallelism to themselves, will have each the same ratio; and in all series indicated by such two lines, the ratio between an antecedent and consequent, the former taken upon one line, and the latter upon another, will be also the same. The first of these propositions is proved in the following manner:—Let the lines AB , CD , EF , plate LOGARITHMS, fig. 5, represent parts of the logarithmic line, arranged according to the proportion already mentioned; and let GH be a right line passing through the points e, c, a , denoting numbers in geometrical progression; then will any other line IK , drawn across the arrangement, likewise pass through three points f, d, b , in geometrical progression. From one of the points of intersection f , in the last mentioned line IK , draw the line fg parallel to GH , and intersecting the arrangement in the points i, h ; and the ratios of the numbers e, f, c, i , will be equal, as well as of a, h : because the intervals on the logarithmic line, or differences of the logarithms of those numbers, are equal. Again, the point f , the line id , and the line hb , are in arithmetical progression, denoting the differences between the logarithms of the numbers themselves; whence the quotients of the numbers are in geometrical progression. The second proposition is proved in a similar manner. For as it was shown that the line fg , parallel to GH , passes through points of division denoting numbers in the same continued ratio as those indicated by the line GH ; it may also be shown that the line LM , parallel to any other line IK , will pass through a series of points denoting numbers which have the same continued ratio with those indicated by the line IK , to which it is parallel. The third proposition arises from the parallelism of the lines to their former situation; by which means they indicate numbers in a geometrical series, having the same common ratio as before: their distance on the logarithmic line also remains unchanged; whence the differences between the logarithms of the opposite numbers, and of consequence their ratios, will always be constant. V. Supposing now an antecedent and consequent to be given, in any geometrical series, it will always be possible to find them, provided the line be of unlimited length. Drawing two parallel lines, then, through each of the numbers, and supposing the lines to move without changing their direction or parallel situation, they will continually describe new antecedents and consequents in the same geometrical series as before. VI. Though the logarithmic line contain no greater range of numbers than from 1 to 10, it will not be found necessary for the purposes of computation to repeat it. The only thing requisite is to have a slider or beam with two fixed points at the distance of the interval betwixt 1 and 10, and let a moveable point be made to range betwixt them always to indicate the antecedent; then, if the consequent fixed point fall without the rule, the other fixed point will always denote the division on which it

would have fallen had the ruler been prolonged; and this contrivance may easily be adapted to any arrangement of parallel lines whatever. The arrangement of right lines, however, ought always to be disposed in such a manner as to occupy a right angled parallelogram, or the cross line already mentioned ought always to be at right angles to the length of the ruler. Fig. 6 is a ruler consisting of ten parallel lines. Fig. 7 a beam compass for measuring the intervals. B, A, C , are the parts which apply to the surface of the ruler; the middle one, A , being moveable sideways in a groove in the piece DE , so as always to preserve its parallelism to the external pieces D, C , which are fixed at a distance equal to the length of the ruler, and have their edges placed in such a manner as to form, with the parallel lines which they intersect, a ratio, which by composition is one-tenth; which in the present case requires them to be at right angles to the length. The piece DE is applied to the edge FG of the ruler. The edges or borders H, I, K, L , are more conveniently made of transparent horn, or tortoise-shell, than of any opaque matter. In using this ruler, apply the edge of either B or C to the consequent, and slide the piece A to the antecedent; observing the difference between the numbers on the pieces denoting the lines they are found on: then, applying the same edge of A to any other antecedent, the other piece B or C will intersect a consequent in the same ratio upon that line, having the same situation with regard to the antecedent that the line of the former consequent had to its antecedent. But if B be the consequent piece, and fall without the ruler, the piece C will show the consequent one line lower; or if C , in like manner, fall without the ruler, then B will show the consequent one line higher. 'It might be convenient,' says Mr. Nicholson, 'for the purpose of computation, to make instruments of this kind with 100 or more lines: but, in the present instrument, the numbers on the pieces will answer the same purpose; for, if a consequent fall upon a line at any given number of intervals without the ruler, it will be found on that line of the arrangement which occupies the same number of intervals, reckoned inwards from the opposite edge of the ruler.' Fig. 8 is an instrument on the plan of a Gunter's scale, of twenty-eight inches and a half long, invented by the late Mr. Robertson. There is a moveable piece AB in the slider GH , across which is drawn a fine line: the slider having also lines CD, EF , drawn across it at distances from each other equal to the length of the ruler AB . In using the instrument, the line CD or EF is to be placed at the consequent, and the line in AB at the antecedent: then, if the piece AB be placed at any other antecedent, the same line CD or EF will indicate its consequent in the same ratio taken the same way: that is, if the antecedent and consequent lie on the same side of the slider, all other antecedents and consequents in that ratio will be in the same manner; and the contrary if they do not. But, if the consequent line fall without the ruler, the other fixed line on the slider will show the consequent, but on the contrary side of the slider to that where it would else have been seen by means of

the first consequent line. Fig. 9 is a circular instrument equivalent to the former; consisting of three concentric circles engraved and graduated upon a plate of an inch and a half diameter. Two legs, A and B, proceed from the centre, having right-lined edges in the direction of radii; and are moveable either singly or together. In using the instrument, place one of the edges at the antecedent and the other at the consequent, and fix them at the angle. Move the two legs then together; and, having placed the antecedent leg at any other number, the other will give the consequent one in the like position on the lines. If the line C D happen to lie between the legs, and B be the consequent leg, the number sought will be found one line farther from the centre than it would otherwise have been: and, on the contrary, it will be found one line nearer in the like case, if A be the consequent leg. 'This instrument,' says Mr. Nicholson, 'differing from that represented fig. 6, only in its circular form and the advantages resulting from that form, the lines must be taken to succeed each other in the same manner laterally; so that numbers which

fall either within or without the arrangement of circles will be found on such lines of the arrangement as would have occupied the vacant places, if the succession of lines had been indefinitely repeated sidewise. I approve of this construction, as superior to every other which has yet occurred to me, not only in point of convenience, but likewise in the probability of being better executed; because small arcs may be graduated with very great accuracy, by divisions transferred from a larger original. The instrument, fig. 6, may be contained conveniently in a circle of about four inches and a half diameter. The circular instrument is a combination of the Gunter's line and the sector, with the improvements here pointed out. The property of the sector may be useful in magnifying the differences of the logarithms in the upper part of the line of sines, the middle of the tangents, and the beginning of the versed sines. It is even possible, as mathematicians will easily conceive, to draw spirals, on which graduations of parts, every where equal to each other, will show the ratios of those lines by moveable radii, similar to those in this instrument.'

LOGARITHMS.

GENERAL DEFINITION.

1. LOGARITHMS. (logarithme, Fr. *λογος* and *αριθμος*)—Logarithms, which are the indexes of the ratios of numbers one to another, were first invented by Napier lord Merchiston, a Scottish baron, and afterwards completed by Mr. Briggs, Savilian professor at Oxford. They are a series of artificial numbers, contrived for expediting calculations; and proceed in an arithmetical proportion, as the numbers they answer to do in a geometrical one. The addition and subtraction of logarithms answer to the multiplication and division of the numbers they correspond with; and this saves an infinite deal of trouble. In like manner will the extraction of roots be performed, by bisecting the logarithms of any numbers for the square root, and trisecting them for the cube, and so on. *Harris*.

The doctrine of logarithms being of great importance, in the science of mathematics, we shall explain their nature and properties more fully in the following section:—

SECT. I.—OF THE NATURE AND PROPERTIES OF LOGARITHMS.

2. Let there be two series of numbers, the one constituting an arithmetical progression, and the other a geometrical progression, as follows:—

Arith. prog. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, &c.
Geom. prog. 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, &c.
where the terms stand over each other in such a manner, that 0 in the arithmetical series corresponds to unity in the geometrical series; then we readily perceive, that the two series, so arranged, possess the following properties:

3. I. Let the sum of any two terms of the arithmetical series be taken; and also the product of the corresponding terms of the geometrical series; then, below that term of the arithmetical series, which is equal to the sum, will be

found a term of the geometrical series equal to the product.

Thus, if the terms of the arithmetical series be 3 and 5, those of the geometrical series will be 8 and 32. Now $3 + 5 = 8$; and $8 \times 32 = 256$; and, by inspecting the two series, we find that the term 256 in the geometrical series stands below 8 of the arithmetical series.

4. II. Let the difference of any two terms of the arithmetical series be taken, and also the quotient of the corresponding terms of the geometrical series; then, below that term of the arithmetical series which is equal to the difference, will be found a term of the geometrical series equal to the quotient.

Thus, if the terms of the arithmetical series be 5 and 8, and therefore those of the geometrical series 32 and 256; we shall have $8 - 5 = 3$, and $256 \div 32 = 8$; and we find, by inspecting the series, that 8 of the geometrical series stands below 3 of the arithmetical series. This last property is evidently nothing else than the converse of the former.

5. In the preceding geometrical series the common ratio is 2, but it may be any other number whatever, whole or fractional. Thus the same properties will be found to hold true of these series:

Arith. prog. 0, 1, 2, 3, 4, 5, 6, 7, &c.
Geom. prog. 1, 3, 9, 27, 81, 243, 729, 2187, &c.
where the common ratio of the geometrical series is 3. They also hold true in the following:—

Arith. prog. 0, 1, 2, 3, 4, 5, &c.
Geom. prog. 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$, &c.
where the common ratio is $\frac{1}{2}$.

6. To demonstrate that the two foregoing properties must necessarily be true in every case, it is only necessary to write down a geometrical series, according to the algebraic method of notation, thus, r^0 or 1, r^1 , r^2 , r^3 , r^4 , r^5 , r^6 , &c., where r denotes the ratio of the series, and it

presently appears, that the arithmetical series is supplied by the numeral exponents of the terms. Hence it follows, that the properties, which we have ascribed to any geometrical, and its corresponding arithmetical series, are no other than two well known propositions in algebra; namely, that the sum of the exponents of any two powers of an algebraic quantity is equal to the exponent of their product; and that the difference of their exponents is equal to the exponent of their quotient.

7. When the terms of an arithmetical progression are adapted to those of a geometrical progression, as in the three examples given in § 2 and 5, the terms of the arithmetical series are called the logarithms of the corresponding terms of the geometrical series.

Thus, in the first example, 0, 1, 2, 3, &c., are the logarithms of 1, 2, 4, 8, 16, &c., respectively.

In the second example, 0, 1, 2, 3, &c., are the logarithms of the numbers 1, 3, 9, 27, &c.

And, in the third example, 0, 1, 2, 3, &c., are the logarithms of 1, $\frac{1}{3}$, $\frac{1}{9}$, $\frac{1}{27}$, &c.

By applying now the properties of these series which were demonstrated in § 6, to logarithms, and their corresponding numbers, we may define logarithms to be a series of numbers in arithmetical progression, so adapted to another series of numbers in geometrical progression, that the sums and differences of the former correspond to and show the products and quotients of the latter.

8. From this definition of logarithms it appears, that there may be an infinity of different systems according as one or other geometrical series is adapted to the arithmetical series, 0, 1, 2, 3, &c. It may, however, be readily supposed that some systems are better suited to general calculation than others. Accordingly it has been found convenient in practice to adopt that in which the logarithm of 10 is unity: the series of numbers which may have their logarithms expressed by integers being as in the following table:—

Logarithms 0, 1, 2, 3, 4, &c.
Numbers 1, 10, 100, 1000, 10,000, &c.

9. With respect to the numbers between 1 and 10, 10 and 100, &c., and their corresponding logarithms, they may be understood to be supplied by interpolation, thus: Conceive a great number of geometrical proportionals to be inserted between the natural numbers 1 and 10 which are the extremes; also an equal number of arithmetical proportionals between their logarithms 0 and 1: then, if the number of geometrical proportionals be sufficiently great, some one or other of them will be sufficiently near to each of the natural numbers 2, 3, 4, 5, &c., to 9, as to admit of the one being taken for the other, without any sensible error. There will also be a corresponding logarithm to each, which, as it will be less than unity, may be most conveniently expressed by a decimal fraction.

10. Let us suppose the number of geometrical proportionals between 1 and 10, and also the number of arithmetical proportionals between 0 and 1, to be 9999, and therefore the number of terms, including 1 and 10, 10001. Then the 3011th term of the geometrical series will be

1·9999, or 2 nearly, and the corresponding term of the arithmetical series, ·3010, therefore the logarithm of 2 is ·3010, nearly. Again, the 4772d term of the geometrical series will be 2·9999, or 3 nearly; and the corresponding term of the arithmetical series ·4771; therefore the logarithm of 3 is ·4771 nearly; and so on with respect to other numbers.

11. If we suppose the series of natural numbers 1, 2, 3, 4, 5, &c., to be arranged in a table, so that each number may stand opposite to its corresponding logarithm; it is evident from the properties which we have shown to belong to logarithms, that, by means of such a table, the arithmetical operations of multiplication, division, involution, and evolution, may be performed with great facility.

12. For, since the sum of the logarithms of any two numbers is equal to the logarithm of their product, § 3, the product of any two numbers will be found in the table opposite to that logarithm which is the sum of the logarithms of the numbers.

Again, because the difference of the logarithms of two numbers is equal to the logarithm of the quotient arising from the division of the one number by the other, § 4, that quotient will be found in the table, opposite to the logarithm which is excess of the logarithm of the dividend, above that of the divisor.

13. Involution is performed by multiplying the root into itself a number of times, which is one less than the exponent of the power; therefore, if the logarithm of the root be multiplied by the exponent of that power, the product will be the logarithm of the power of the root. And, evolution being the reverse of involution, the logarithm of any root of a number will be had if we divide the logarithm of that number by the index of the root; and thence the root itself may be found, by inspecting the table of logarithms.

14. Upon the whole, therefore, it appears that by means of a table containing the series of natural numbers, 1, 2, 3, &c., as far as may be convenient, and their corresponding logarithms, the operations of multiplication and division may be reduced to the more simple operations of addition and subtraction; and the operations of involution and evolution, to those of multiplication and division.

SECT. II.—HISTORY OF LOGARITHMS.

15. The properties of a geometrical series, which constitute the foundation of the doctrine of logarithms, appear to have been known as far back as the days of Archimedes; for that celebrated mathematician makes use of them in his work entitled *Arenarius*, or *Treatise on the Number of Sands*. The same properties are also mentioned in the writings of Stifelius, a German mathematician, who lived about the middle of the sixteenth century. It does not, however, appear, that any person perceived all the advantages which might be derived from these properties, till about the beginning of the seventeenth century, when their utility was rendered evident by the happy invention of logarithms.

16. This discovery, certainly one of the most valuable that ever was made in mathematics, is

due to John Napier, baron of Merchiston, in Scotland, who published it to the world, in 1614, in a work which he called *Mirifici Logarithmorum Canonis Descriptio*, and which contained a large table of logarithms, together with their description and uses: but the author reserved his method of constructing them, till the sense of the learned concerning his invention should be known.

17. In the above mentioned work, Napier explains his notion of logarithms by lines described, or generated, by the motion of points, in this manner:—He first conceives a line to be generated by the motion of a point, which passes over equal portions of it, in equal small moments or portions of time. He then considers another line to be generated by the unequal motion of a point, in such a manner, that, in the aforesaid equal portions, or moments of time, there may be described, or cut off from a given line, parts which shall be continually in the same proportion with the respective remainders of that line, which had before been left; then are the several lengths of the first line the logarithms of the corresponding parts of the latter. Which description of them is similar to that which we have already given, viz. that logarithms are a series of quantities, or numbers in arithmetical progression, adapted to another series in geometrical progression.

18. Napier made the first, or whole length of the line, which is diminished in geometrical progression, the radius of a circle; and its logarithm 0, or nothing, representing the beginning of the first or arithmetical line. Thus the several proportional remainders of the geometrical line are the natural sines of all arches of a quadrant, decreasing down to 0; while the successive increasing values of the arithmetical line are the corresponding logarithms of those decreasing sines: so that, while the natural sines decrease from radius to 0, their logarithms increase from 0 to infinity. Napier made the logarithm of radius to be 0, that he might save the trouble of adding and subtracting it in trigonometrical operations, in which it so frequently occurred; and he made the logarithms of the sines, from the entire quadrant down to 0, to increase, that they might be positive, and so, in his opinion, easier to manage; the sines being of more frequent use than the tangents and secants, of which the whole of the latter, and the half of the former, being greater than radius, would, according to his construction, have their logarithms negative.

19. The description and use of Napier's canon being in the Latin language, they were translated into English by Mr. Edward Wright, the ingenious inventor of what is commonly, though erroneously, called Mercator's sailing. The translation was sent to the author, who revised it, and returned it with his approbation. Mr. Wright, however, dying soon after he received it back, the work, together with the tables, was published in 1616, after his death, by his son Samuel Wright, who dedicated it to the East India Company. It contained also a preface by Henry Briggs, of whom we shall have occasion to speak again presently, on account of the great share he bore in perfecting the logarithms.

20. As Napier's canon contained only the

natural sines for every minute of the quadrant, and their corresponding logarithms, it was attended with some degree of inconvenience, when used as a table of the logarithms of common numbers; because, when a number was proposed which was not exactly the same with some number denoting a natural sine, it was then necessary to find its logarithm by means of an arithmetical calculation, performed according to precepts which the author delivered in his work. This inconvenience, which was in part obviated by certain contrivances of Wright and Briggs, was not the only one; for there was another, which arose from the logarithms being sometimes +, or additive, and sometimes —, or negative; and which therefore required the knowledge of algebraic addition and subtraction. This last defect was occasioned partly by making the logarithm of radius 0, and those of the sines to increase; and partly by the compendious manner in which the author had formed the table; making the three columns of sines, cosines, and tangents, to serve also for the other three of cosecants, secants, and cotangents.

21. But this latter inconvenience was well remedied by John Speidell, in his *New Logarithms*, first published in 1617; which contained all the six columns, and these all of a positive form, by being taken the arithmetical complements of Napier's, that is, they were the remainders left by subtracting each of the latter from 10,000,000. And the former inconvenience was more completely removed by Speidell in a second table, given in the sixth impression of the former work, in the year 1624. This was a table of Napier's Logarithms for the integers 1, 2, 3, 4, 5, &c., to 1000, together with their differences and arithmetical complements; as also the halves of the said numbers, with their differences and arithmetical complements; which halves were consequently the logarithms of the square roots of the said numbers. Those logarithms are, however, a little varied in their form from Napier's, namely, so as to increase from 1, whose logarithm is 0, instead of decreasing to 1 or radius, whose logarithm Napier made 0 likewise; that is, Speidell's logarithm of any number n is equal to Napier's logarithm of its reciprocal $\frac{1}{n}$. So that, in this last table of Speidell's, the logarithm of 1 being 0, the logarithm of 10 is 2302584; the logarithm of 100 is twice as much, or 4605168; and that of 1000, thrice as much, or 6907753. The logarithms contained in this table are now commonly called hyperbolic logarithms; because they serve to express the areas contained between the curve of the hyperbola and its asymptote.

22. The celebrated inventor of the logarithms died in the year 1618; and in 1619 his son Robert Napier published a new edition of the *Logarithmorum Canonis Descriptio*, to which was now added the promised *Logarithmorum Canonis Constructio*, and other miscellaneous pieces written by his father and Mr. Briggs. This work was reprinted in France in 1620; also, nearly about this time, different mathematicians abroad published tables of logarithms of the same kind as those of Napier; as Benjamin Ursinus, mathematician to the elector of Brandenburg.

also the famous Kepler, who was the mathematician to the emperor Ferdinand II. and others.

23. Next to the discovery of logarithms, the most remarkable circumstance connected with their history is that improvement which they received in their form from Henry Briggs, who was, at the time of the publication of Napier's logarithms, professor of geometry in Gresham College, in London, and afterwards Savilian professor of geometry at Oxford, where he died in the year 1630.

24. On the first publication of Napier's logarithms, Briggs immediately applied himself to the study and improvement of them; and presently saw that it would be of advantage to change the scale; so that the logarithm of 1 being 0, as in Napier's form, the logarithm of 10 might be 1, that of 100 2, of 1000 3, and so on; whereas the logarithms of the same numbers, according to Napier's construction, were 2.302585, 4.605168, 6.907753, &c. This improvement Briggs communicated both to the public in his lectures, and to Napier himself, who afterwards said, that he had also thought of the same thing; as appears from the following extract, translated from the preface to Briggs's *Arithmetica Logarithmica*: 'Wonder not,' says he, 'that these logarithms are different from those which the excellent baron of Marchiston published in his *Admirable Canon*. For when I explained the doctrine of them to my auditors at Gresham College, in London, I remarked, that it would be much more convenient, the logarithm of the sine total being 0 (as in the *Canon Mirificus*), if the logarithm of the tenth part of the said radius, namely, of $5^{\circ} 44' 21''$, were 100000, &c., and concerning this, I presently wrote to the author; also, as soon as the season of the year, and my public teaching, would permit, I went to Edinburgh, where, being kindly received by him, I staid a whole month. But, when we began to converse about the alteration of them, he said, that he had formerly thought of it, and wished it; but that he chose to publish those that were already done, till such time as his leisure and health would permit him to make others more convenient. And, as to the nature of the change, he thought it more expedient, that 0 should be the logarithm of 1, and 100000, &c., the logarithm of radius, which I could not but acknowledge was much better; therefore, rejecting those I had before prepared, I proceeded, at his exhortation, to calculate these, and the next summer I went to Edinburgh, to show him the principal of them, and should have been glad to do the same the third summer, if it had pleased God to spare him so long.'

25. Thus it appears that Briggs was the inventor of the present scale of logarithms, in which 1 is the logarithm of 10, and 2 that of 100, &c., and that the share which Napier had in them was only advising Briggs to begin at the lowest number 1, and make the logarithms, or artificial numbers (as Napier had also called them), to increase with the natural numbers, instead of decreasing, which made no alteration in the figures that expressed Briggs's logarithms, but only in their affections or signs, changing them from negative to positive; for, according to Briggs's first intention, the logarithms of .001, .01, .1, 1, 10, 100, 1000,

&c., would have been +3, +2, +1, 0, -1, -2, -3, &c.; but, in conformity to the suggestion of Napier, they were made -3, -2, -1, 0, +1, +2, +3, &c., which is a change of no essential importance, as the scale of the system is the same in either case. And the reason why Briggs, after that interview, rejected what he had before done, and began anew, was probably because he had adapted his new logarithms to approximate sines of arcs, instead of the round or integer numbers, and not from their being logarithms of another system, as were those of Napier.

26. About the year 1618 Briggs published the first 1000 logarithms to eight places of figures, besides the index, under the title of *Logarithmorum Chilias Prima*: and in 1624 he produced his *Arithmetica Logarithmica*, a stupendous work for so short a time, containing the logarithms of 30,000 natural numbers, to fourteen places of figures besides the index; namely, from 1 to 20,000, and from 90,000 to 100,000, together with the differences of the logarithms; and in both these works the logarithms were calculated according to the system which had been agreed upon between him and the first inventor; that is, they were the same as the system which we commonly employ at the present time.

27. Soon after the publication of the *Arithmetica Logarithmica*, Adrian Vlacq, or Flack, completed the intermediate seventy chiliads, and republished it at Gouda, in Holland; thus making in the whole, the logarithms of all numbers from 1 to 100,000; but only to ten places of figures. He also added a table of artificial sines, tangents, and secants, to every minute of the quadrant.

28. Briggs himself also lived to complete a table of logarithmic sines and tangents for the 100th part of every degree of the quadrant, to fourteen places of figures, besides the index; together with a table of natural sines for the same parts, to fifteen places, and the tangents and secants of the same to ten places, with the construction of the whole. These tables were printed at Gouda, under the care of Adrian Vlacq, and nearly finished off before 1631. But the death of the author, which happened in 1630, prevented him from completing the application and uses of them. However, the performing of this office he recommended, when dying, to his friend Henry Gellibrand, then professor of astronomy in Gresham College; who added a preface, and the application of the logarithms to plane and spherical trigonometry, &c. The work was published in 1633, under the title of *Trigonometria Britannica*; and besides the arcs in degrees, and centesims of degrees, it has another column, containing the minutes and seconds, answering to the several centesims in the first column.

29. In the same year Vlacq printed at Gouda his *Trigonometria Artificialis*; sive *Magnus Canon Triangulorum Logarithmicus*, ad *Decadas Secundorum Scrupulorum constructus*. This work contains the logarithmic sines and tangents to ten places of figures, with their differences, for every ten seconds in the quadrant. To them is

also added Briggs's table of the first 20,000 logarithms; but carried only to ten places of figures, besides the index, with their differences. The whole is preceded by a description of the tables, and the application of them to plane and spherical trigonometry, chiefly extracted from Briggs's *Trigonometria Britannica*, mentioned above.

30. Gellibraud published also, in 1635, An *Institution Trigonometrical*, containing the logarithms of the first 10,000 numbers, with the natural sines, tangents, and secants, and the logarithmic sines and tangents for degrees and minutes, all to seven places of figures, besides the index; as also other tables proper for navigation, with the uses of the whole.

31. Having now given some account of such works on logarithms as seem most connected with their first discovery and subsequent improvement, we shall pass over many others, some of which, however, have been held in high repute, both for their accuracy, and the extent to which the tables have been carried. As, however, even the arrangement of the logarithms in the tables has received considerable improvements since the days of Napier, it may be proper to mention, that they were first reduced to the most convenient form by John Newton, in his *Trigonometria Britannica*, published at London in 1658.

32. Among the tables of logarithms which have been published of late years, in this country, there are two works most deservedly in repute, both for accuracy and convenience of arrangement: these are Dr. Hutton's *Mathematical Tables*, containing common, hyperbolic, and logistic logarithms, &c., and Taylor's *Tables of logarithms of all numbers, from 1 to 101,000*; and of the sines and tangents to every second of the quadrant. Several very accurate and well arranged collections of tables of logarithms have also been lately printed in France one which deserves to be particularly mentioned is Callet's stereotype edition of *Tables Portatives de Logarithmes*. These contain the logarithms of numbers from 1 to 108,000, and the logarithmic sines and tangents for every second, in the first five degrees, and for every ten seconds of the remaining degrees of the quadrant, and also for every 10,000th part of the arc, according to the new centesimal division of the quadrant. The logarithms are to seven decimal places.

33. But a more extensive collection of logarithmic tables than any we have yet mentioned, was begun in France in 1794, under the direction of C. Prony, who engaged not only to compose tables which should leave nothing farther to be desired with regard to accuracy, but to make them the most extended and most striking monument of calculation, which had ever been executed, or even imagined. In preparing this work, C. Prony availed himself of the advantage to be derived from the division of labor, by means of which, the greatest perfection of workmanship is obtained in the arts, with the least expense of money and time. By the united labors of C. Prony and his assistants, who were divided into three classes, two MS. copies of the tables were prepared; these composed seventeen volumes, large folio, and contained,

(1.) An introduction, consisting of an exposition of the analytical formulæ, the use of the trigonometrical table; and a number of auxiliary tables.

(2.) The natural sines for every 10,000th part of the quadrant, calculated to twenty-five places of decimals, with seven or eight columns of differences; to be published with twenty-two decimals, and five columns of differences.

(3.) The logarithms of these sines calculated to fourteen decimals, with five columns of differences.

(4.) The logarithms of the ratios of the sines to the arcs, for the first 5000 10,000th parts of the quadrant, calculated to fourteen decimals, with three columns of differences.

(5.) The logarithms of the tangents, corresponding with the logarithms of the sines.

(6.) The logarithms of the ratios of the tangents to the arcs, calculated like those in the fourth article.

(7.) Logarithms of numbers from 1 to 100,000, calculated to nineteen places of decimals.

(8.) The logarithms from 100,000 to 200,000, calculated to twenty-four decimals, in order to be published to twelve decimals, and three columns of differences.

The printing of this immense work was commenced under the auspices of the French government, but was suspended at the fall of the assignats, and has not since been resumed. After the overthrow of Buonaparte an offer was made by the British government (on the suggestion of Mr. Davies Gilbert, the present president of the Royal Society), to defray one-half of the expense attending the printing and publication of the work; but the offer was declined by the French government, but in a manner which showed that the feelings which dictated the offer were duly appreciated.

SECT. III.—THE CONSTRUCTION OF LOGARITHMS.

34. From the general explanation which has been given of the nature of logarithms, in § 1, it is not difficult to see how we may find the logarithms of as many numbers as we please. For the arithmetical series 0, 1, 2, 3, 4, &c., being assumed to denote the logarithms of the geometrical series

1, 10, 100, 1000, 10,000, &c.

if we find any number of arithmetical proportionals between every two terms of the former, and an equal number of geometrical proportionals between the corresponding terms of the latter; these arithmetical proportionals will be the logarithms of the corresponding geometrical proportionals.

35. The logarithms thus found will not indeed correspond exactly to any term in the series of whole numbers 2, 3, 4, 5, &c., but, proceeding upon the same principle, the logarithms of these may be also found, as in the following example, where it is proposed to determine the logarithm of the number 9: and, as the inserting of two or more geometrical proportionals between any two given numbers would require the extraction of the cube or some higher root, we shall carry on the operation by inserting only one mean,

which may be done by the extraction of the square root.

36. Because the logarithm of 1 is 0, and the logarithm of 10 is 1, we are to find an arithmetical mean between 0 and 1, and a geometrical mean between 1 and 10; the former will be $\frac{0+1}{2} = \frac{1}{2} = .5$, and the latter $\sqrt{1 \times 10} =$

$\sqrt{10} = 3.1622777$. Hence the logarithm of 3.1622777 is .5. Again, let an arithmetical mean be found between .5, the logarithm of 3.1622777, and 1, the logarithm of 10, and a geometrical mean between 3.1622777 and 10, the former will be $\frac{1+.5}{2} = \frac{1.5}{2} = .75$; and the

latter $\sqrt{10 \times 3.1622777} = 5.6234132$. Thus the logarithm of 5.6234132 is found to be .75. For a third operation, let an arithmetical mean be found between .75, the logarithm of 5.6234132, and 1, the logarithm of 10; also a geometrical mean between 5.6234132 and 10; the former will be $\frac{1+.75}{2} = \frac{1.75}{2} = .875$; and the latter

$\sqrt{10 \times 5.6234132} = 7.4989422$. Therefore the logarithm of 7.4989422 is .875.

Fourth operation. Let an arithmetical mean be found between .875, the logarithm of 7.4989422, and 1, the logarithm of 10; also a geometrical mean between 7.4989422 and 10; the former will be .9375, and the latter 8.6596431. Thus the logarithm of 8.6596431 is .9375.

Fifth operation. Let an arithmetical mean be found between .9375, the logarithm of 8.6596431, and 1 the logarithm of 10; also a geometrical mean between 8.6596431 and 10, the former will be .96875, and the latter 9.3057204. Thus the logarithm of 9.3057204 is .96875.

Sixth operation. As the geometrical mean last found exceeds 9, let there now be found an arithmetical mean between .9375, the logarithm of 8.6596431, and .96875 the logarithm of 9.3057204, the former will be .953125, and the latter 8.9768713. Thus the logarithm of 8.9768713 is .953125.

Proceeding in this manner, after twenty-five extractions of the square root, it will be found that the logarithm of 8.9999998 is .9542425, which may be taken also for the logarithm of 9, as it differs so little from it, that it is sufficiently exact for all practical purposes.

37. Having found the logarithm of 9, we may thence find the logarithms of all roots and powers of 9, as well as all multiples of those roots and powers, by 10, 100, 1000, &c. Thus

$$\begin{aligned}\log. 3 &= \log. \sqrt{9} = \frac{1}{2} \log. 9 = .4771213 \\ \log. 81 &= \log. 9^2 = 2 \times \log. 9 = 1.9084850 \\ \log. 30 &= \log. 3 + \log. 10 = 1.4771213.\end{aligned}$$

38. This method of computing the logarithms of numbers, by the finding of geometrical proportionals, is exceedingly tedious: it is, however, nearly the same as was employed by the first computers of logarithms; but the improvements which have been since made in the various branches of mathematics, and particularly in the doctrine of infinite series, have furnished much easier me-

thods of computing logarithms. These, as well as the nature and properties of logarithms, we now proceed to explain, by means of the principles of the common algebraic analysis, in the following manner.

39. Let r denote any positive number whatever, different from unity. Then, by assuming proper exponents, the powers of r may become equal to all positive numbers whatever, whether those numbers be whole or fractional. Thus if $r = 2$, we have $2^0 = 1$, $2^1 = 2$, $2^2 = 4$, $2^3 = 8$, $2^4 = 16$, &c. As to the intermediate numbers 3, 5, 6, 7, &c., they may be expressed, at least nearly, by fractional powers of 2. Thus, $2^{1.5850} = 3$, $2^{2.3219} = 5$, $2^{2.5850} = 6$, $2^{2.8073} = 7$, &c.

So also the powers of 10 may become, either exactly or nearly, equal to all positive numbers whatever. Thus,

$10^0 = 1$	$10^{-.7761} = 6$
$10^{-.3010} = 2$	$10^{-.0451} = 7$
$10^{-.4771} = 3$	$10^{-.9031} = 8$
$10^{-.6021} = 4$	$10^{-.9542} = 9$
$= 5$	$10^1 = 10$

40. In general, if a denote any positive number, it is sufficiently evident, that it is possible to conceive a corresponding number A , such, that $r^A = a$; and A , that is the exponent of r , which gives a power equal to a , is called the logarithm of a .

41. From this manner of defining logarithms, we readily derive all their properties. For a and b denoting any two numbers; also A and B their logarithms; we have $r^A = a$, and $r^B = b$, therefore $r^A + r^B = ab$; but $r^A \times r^B = r^{A+B}$; therefore $A + B$ is the logarithm of ab ; that is, the sum of the logarithms of any two numbers is equal to the logarithm of the product. Again, $\frac{r^A}{r^B} = \frac{a}{b}$; but $\frac{r^A}{r^B} = r^{A-B}$; therefore, $A - B$

is the logarithm of $\frac{a}{b}$; that is, the difference of the logarithms of two numbers is equal to the logarithm of their quotient.

If we resume the equation $r^A = a$, we have $r^{nA} = a^n$, therefore nA is the logarithm of a^n ; and, since n may be either a whole number or a fraction, it follows, that the logarithm of any power of a number is equal to the logarithm of that number, multiplied by the exponent of the power; also, that the logarithm of any root of a number is equal to the logarithm of the number divided by the exponent of the root.

42. There may be various systems of logarithms, according to the different values which may be given to the number r , which is called the radical number of the system. In the common system of the logarithms, r is 10; but in the system of Napier it is 2.7182818. It is evident from the definition given in § 40, that the logarithm of the radical number in every system must be unity. In different systems, the logarithms of the same number are always to one another in a constant ratio. Suppose that A is the logarithm of the number a , the radical number of the system being r ; and A' the logarithm of the same number, according to another system,

the radical number of which is r' : Then $r^a = a$, and $r'^{A'} = a$; therefore $r^A = r'^{A'}$, and $r^{\frac{A}{A'}} = r'$. Thus it appears that the fraction $\frac{A}{A'}$ depends only on r , and r' ; and therefore must be the same whatever be the value of the number a .

43. Hence it follows, that if the logarithms of numbers, according to any one system, be given, the logarithms of the same numbers, according to any other proposed system, may be readily found. Thus, if the given system be the common logarithms, the radical number of which is 10, and it be required to find the logarithm of any number a , according to Napier's system, of which the radical number is 2.7182818; let A denote the logarithm of a , according to the former system; and x the logarithm of a , according to the latter. Then, by substituting 10 and 2.7182818, for r and r' ; also x for A , in the last equation of § 42, we have $10^{\frac{A}{x}} = 2.7182818$, and, from the nature of logarithms, $\frac{A}{x} \times \log. 10 = \log. 2.7182818$, § 41: Hence

$$\frac{\log. 10}{\log. 2.7182818} \times A = .4342945 \times A$$

 $= 2.3025851 \times A$. Thus it appears, that Napier's logarithm of any number is equal to the common logarithm of the same number, multiplied by 2.3025851; or divided by .4342945.

44. Let us now denote any number whatever by y , and its logarithm by x ; then, r representing as before the radical number of the system, the relation between a number and its logarithm is represented by the algebraic equation $r^x = y$. This equation suggests two subjects of enquiry, both capable of being resolved by means of the algebraic method of analysis. These are: first, To determine y when x is given; or to determine the number which corresponds to a given logarithm. Secondly, To determine x when y is given; that is, to determine the logarithm corresponding to a given number.

45. We proceed to the first subject of enquiry, namely, to find an algebraic expression for y , in terms of x and r ; or to express, generally, any number by means of its logarithm, and the base or radical numbers of the system: for this purpose, let us assume

$r^x = A + Bx + Cx^2 + Dx^3 + Ex^4 + \&c.$
 Here $A, B, C, D, \&c.$, are supposed to be co-efficients independent of x . Let x denote any other quantity; then, in like manner, we have

$r^x = A + Bx + Cx^2 + Dx^3 + Ex^4 + \&c.$
 Taking now the difference between the assumed equations, and dividing both sides of the result by $x - z$, we have

$$\frac{r^x - r^z}{x - z} = \frac{B(x - z) + C(x^2 - z^2) + D(x^3 - z^3) + \&c.}{x - z}$$

Now it is well known, that each of the quantities $x - z, x^2 - z^2, x^3 - z^3, \&c.$, which compose the latter part of this equation, is divisible by $x - z$; therefore, these several divisions being actually effected, the last equation may otherwise be expressed thus

$$\frac{r^x - r^z}{x - z} = B + C(x + z) + D(x^2 + xz + z^2) + E(x^3 + x^2z + xz^2 + z^3) + \&c.$$

46. That we may expand the first part of this equation into the form of a series, let us express the numerator $r^x - r^z$ thus, $r^z(r^x - r^z - 1)$; then, putting $1 + a$ for r , we have

$$\frac{r^x - r^z}{x - z} = \frac{r^z}{x - z} \left\{ (1 + a)^{x - z} - 1 \right\}.$$

Now, by the binomial theorem, the quantity $(1 + a)^{x - z}$, when expanded into a series, is $1 + \frac{(x - z)}{1} a + \frac{(x - z)(x - z - 1)}{1 \cdot 2} a^2 + \frac{(x - z)(x - z - 1)(x - z - 2)}{1 \cdot 2 \cdot 3} a^3 + \&c.$

Therefore, subtracting unity from this series, and dividing each of the remaining terms by $x - z$, as indicated by the latter part of the last equation, we have $\frac{r^x - r^z}{x - z} = r^z \left(a + \frac{x - z - 1}{2} a^2 + \frac{(x - z - 1)(x - z - 2)}{2 \cdot 3} a^3 + \&c. \right)$

Hence it appears that

$$r^x \left(a + \frac{x - z - 1}{2} a^2 + \frac{(x - z - 1)(x - z - 2)}{2 \cdot 3} a^3 + \frac{(x - z - 1)(x - z - 2)(x - z - 3)}{2 \cdot 3 \cdot 4} a^4 + \&c. \right) = B + C(x + z) + D(x^2 + xz + z^2) + E(x^3 + x^2z + xz^2 + z^3) + \&c.$$

This last equation, by supposing $z = x$, becomes

$$r^x \left(a - \frac{a^2}{2} + \frac{a^3}{3} - \frac{a^4}{4} + \frac{a^5}{5} \&c. \right) = B + 2Cx + 3Dx^2 + 4Ex^3 + 5Fx^4 + \&c.$$

and substituting for r^x the series

$$A + Bx + Cx^2 + Dx^3 + Ex^4 + \&c.$$

also, putting, for the sake of brevity,

$$a - \frac{a^2}{2} + \frac{a^3}{3} - \frac{a^4}{4} + \frac{a^5}{5} - \&c. = m$$

we find

$$Am + Bmx + Cmx^2 + Dmx^3 + Emx^4 + \&c. = B + 2Cx + 3Dx^2 + 4Ex^3 + 5Fx^4 + \&c.$$

Hence, by putting the co-efficients of the like powers of x in each series equal to one another,

$$\text{we find } B = Am, C = \frac{Bm}{2}, D = \frac{Cm}{3}, E = \frac{Dm}{4},$$

$$F = \frac{Em}{5}, \&c.$$

Thus we have obtained a series of equations, by which all the co-efficients, except A , the first, are determined. It is however readily obtained from the assumed equation $r^x = A + Bx + Cx^2 + \&c.$, by taking $x = 0$; for then the first part of the equation of r^x becomes unity, and all the terms of the second part vanish, except A ; thus $A = 1$,

$$B = \frac{m}{1} C = \frac{m^2}{1 \cdot 2}, D = \frac{m^3}{1 \cdot 2 \cdot 3}, E = \frac{m^4}{1 \cdot 2 \cdot 3 \cdot 4},$$

$$F = \frac{m^5}{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5}, \&c.; \text{ and, by substituting these}$$

values in the assumed series, we find $y = r^x = 1$

$$+ \frac{mx}{1} + \frac{m^2 x^2}{1 \cdot 2} + \frac{m^3 x^3}{1 \cdot 2 \cdot 3} + \frac{m^4 x^4}{1 \cdot 2 \cdot 3 \cdot 4} + \&c.$$

47. Thus we have obtained a series for y , which will always converge, whatever be the values of the quantities m and x . Before, however, the series can be applied to practice, it will be necessary to compute the value of m , which, by putting $r = 1$ for its value a , is equal to this other series

$$\frac{r-1}{1} - \frac{(r-1)^2}{2} + \frac{(r-1)^3}{3} - \frac{(r-1)^4}{4} + \frac{(r-1)^5}{5} -$$

&c. But as this last series will not converge, unless $r-1$ be less than unity, it will be necessary to have recourse to another method of obtaining its sum than by the mere addition of its terms.

48. Resuming, therefore, the equation

$$r = 1 + \frac{mx}{1} + \frac{m^2x^2}{1 \cdot 2} + \frac{m^3x^3}{1 \cdot 2 \cdot 3} + \frac{m^4x^4}{1 \cdot 2 \cdot 3 \cdot 4} + \&c.$$

let us suppose $x = 1$; and we have

$$r = 1 + \frac{m}{1} + \frac{m^2}{1 \cdot 2} + \frac{m^3}{1 \cdot 2 \cdot 3} + \frac{m^4}{1 \cdot 2 \cdot 3 \cdot 4} + \&c.$$

This series gives the value of r , when m is known. Therefore, if we suppose a system of logarithms to be such, that $m = 1$, and put e for the radical number of that system, we have

$$e = 1 + \frac{1}{1} + \frac{1}{1 \cdot 2} + \frac{1}{1 \cdot 2 \cdot 3} + \frac{1}{1 \cdot 2 \cdot 3 \cdot 4} + \&c.$$

and by reducing a sufficient number of the terms of this series to decimal fractions, and taking their sum, we readily find $e = 2.7182818$, nearly. Now, as e is the radical number of a system, in which $m = 1$, for the same reason that

$$r = 1 + \frac{mx}{1} + \frac{m^2x^2}{1 \cdot 2} + \frac{m^3x^3}{1 \cdot 2 \cdot 3} + \&c.$$

we have

$$e^r = 1 + \frac{x}{1} + \frac{x^2}{1 \cdot 2} + \frac{x^3}{1 \cdot 2 \cdot 3} + \frac{x^4}{1 \cdot 2 \cdot 3 \cdot 4} + \&c.$$

and as this must be true, whatever be the value of x , we may suppose $x = m$; hence we have

which last series we have already found to be $= r$, therefore $e^m = r$; and taking the logarithms of both sides of the equation, $m \times \log. e = \log. r$, hence at last we find $m = \frac{\log. r}{\log. e}$;

since the logarithm of the radical number of any system is unity, $m = \frac{1}{\log. e}$. Let this value of

m be substituted in the series of § 46, and we have $y = r^x = 1 + \frac{x}{1 \cdot \log. e} + \frac{x^2}{1 \cdot 2 \cdot (\log. e)^2}$

+ $\frac{x^3}{1 \cdot 2 \cdot 3 \cdot (\log. e)^3} + \&c.$, where it is to be observed that x and $\log. e$ are logarithms belonging to the same system; and by this series a number may be found corresponding to any given logarithm whatever.

49. We are next to investigate a series which shall express the logarithm by means of the number. This may be readily obtained, if we recollect that in § 47 we found

$$m = \frac{r-1}{1} - \frac{(r-1)^2}{2} + \frac{(r-1)^3}{3} - \frac{(r-1)^4}{4} + \&c.$$

and that in § 48 we also found $\log. r = m \times \log. e$, hence we have

$$\log. r = \log. e \left\{ \frac{r-1}{1} - \frac{(r-1)^2}{2} + \frac{(r-1)^3}{3} \right.$$

+ $\&c.$ } Now, this equation must

hold true, whatever be the value of r ; we may therefore substitute 1 for r , and conse-

quently y for $r-1$; where y denotes any number whatever; hence we find

$$\log. (1+y) = \log. e \left(y - \frac{y^2}{2} + \frac{y^3}{3} - \frac{y^4}{4} + \right.$$

&c.) Thus we have found a series which expresses the logarithm of any number whatever, by means of the number itself, and the logarithm of another given number, e .

50. The series which we have just now found will be of little or no use in the actual construction of logarithms, unless y be a small fraction; we may however derive from it another series, much better adapted to that purpose, in the following manner:—

Let us put M for $\log. e = \frac{1}{m}$. Then, because

$$\log. (1+y) = M \left(y - \frac{y^2}{2} + \frac{y^3}{3} - \frac{y^4}{4} + \&c. \right)$$

if we substitute $-y$ for $+y$ we shall have

$$\log. (1-y) = M \left(-y - \frac{y^2}{2} - \frac{y^3}{3} - \frac{y^4}{4} - \&c. \right)$$

and subtracting this last equation from the former,

$$\log. (1+y) - \log. (1-y) = 2M \left(y + \frac{y^3}{3} + \frac{y^5}{5} \right.$$

+ $\&c.$) But, from the nature of logarithms,

$$\log. (1+y) - \log. (1-y) = \log. \frac{1+y}{1-y}.$$

Therefore

$$\log. \frac{1+y}{1-y} = 2M \left(y + \frac{y^3}{3} + \frac{y^5}{5} + \frac{y^7}{7} + \&c. \right)$$

Or, putting z for $\frac{1+y}{1-y}$ and therefore $\frac{z-1}{z+1}$ for

$$y, \log. z = 2M \left\{ \frac{z-1}{z+1} + \frac{1}{3} \left(\frac{z-1}{z+1} \right)^3 + \frac{1}{5} \left(\frac{z-1}{z+1} \right)^5 + \&c. \right\}$$

and, by a proper application of this series, which always converges, the logarithms of numbers may be found with great facility.

51. For example, let us suppose that it is required to compute the logarithm of 2; then, because $z = 2$, we have $\frac{z-1}{z+1} = \frac{1}{3}$, therefore

$$\log. 2 = 2M \left(\frac{1}{3} + \frac{1}{3 \cdot 3^3} + \frac{1}{5 \cdot 3^5} + \frac{1}{7 \cdot 3^7} + \right.$$

&c.) This series converges very fast, for the eighth term does not exceed $\frac{1}{100000000}$; by re-

ducing, therefore, the first seven terms to decimals, and taking their sum, find

$$\log. 2 = .3465736 \times 2M = .6931472 \times \log. e;$$

but we cannot find the absolute value of the logarithm of 2, without previously assigning the particular system to which the logarithm required is to belong. The most simple hypothesis we can assume is, that $\log. e = 1$; hence we have $\log. 2 = .6931472$. This system, which corresponds to the equation $y = e^x$ (where y denotes a number, x its logarithm, and e the base of the system, $= 2.7182818$), is the same as that first adopted by Napier; the logarithms of which are also called hyperbolic, for the reason already assigned in § 21.

52. It appears therefore, from §§ 49 and 50, that Napier's, or the hyperbolic logarithm of any numbers x , is equal to either of these two series

$$\frac{x-1}{1} - \frac{(x-1)^2}{2} + \frac{(x-1)^3}{3} - \frac{(x-1)^4}{4} + \&c.$$

$2 \left\{ \frac{x-1}{x+1} + \frac{1}{3} \left(\frac{x-1}{x+1} \right)^3 + \frac{1}{5} \left(\frac{x-1}{x+1} \right)^5 + \&c. \right\}$ and that the logarithm of x , according

to any other system, is equal to the hyperbolic logarithm of the same number, multiplied by a certain constant quantity $M = \log. e$; which, being peculiar to that system, has been called by writers on logarithms the modulus of the system.

*Now it appears, by recurring to § 47, that

$\frac{1}{\log. e}$, or m , is equal to this series

$$r-1 - \frac{(r-1)^2}{2} + \frac{(r-1)^3}{3} - \&c.$$

which is evidently the hyperbolic logarithm of r , the radical number of the system: hence it follows, that the modulus of any system of logarithms is the reciprocal of the hyperbolic logarithm of the radical number of that system.

53. In the common system of logarithms, the radical number being 10, the modulus of the system may be found by computing the hyperbolic logarithm of 10. Now, by the latter series of § 52, we have

$$\text{hyp. log. } 10 = 2 \left\{ \frac{9}{11} + \frac{1}{3} \left(\frac{9}{11} \right)^3 + \frac{1}{5} \left(\frac{9}{11} \right)^5 + \&c. \right\}$$

But, as this series converges too slowly to be of any use, we may find another that converges faster, by considering, that since $10 = 2 \times 5$, therefore, $\log. 10 = \log. 2 + \log. 5$: Now we have already found hyperbolic logarithm 2; it is only necessary, therefore, to compute hyperbolic logarithm 5.

54. But, in seeking hyperbolic logarithm 10, it will be convenient to begin with even a less number than 5; and, for this purpose, we shall investigate a rule, by which, the logarithm of any number being supposed given, the logarithm of another number, a little greater than the given one, may be found with great facility

Let n be a number, whose logarithm is given, and $n+v$ another number, whose logarithm is required; then, since $n+v = n \left(1 + \frac{v}{n} \right)$, it follows, that $\log. (n+v) = \log. n + \log. \left(1 + \frac{v}{n} \right)$. If we now put $z = 1 + \frac{v}{n}$, we

have $z-1 = \frac{v}{n}$, and $z+1 = 2 + \frac{v}{n}$, and

therefore, $\frac{z-1}{z+1} = \frac{v}{2n+v}$. Hence, by substituting $1 + \frac{v}{n}$ for z , and $\frac{v}{2n+v}$ for $\frac{z-1}{z+1}$

in the series for the logarithm of z , found in § 50, we have

$$\log. (n+v) = \log. n + 2M \left\{ \frac{v}{2n+v} + \frac{1}{3} \frac{v^3}{(2n+v)^3} + \frac{1}{5} \frac{v^5}{(2n+v)^5} + \&c. \right\}$$

which is the series we proposed to investigate.

55. To calculate the hyperbolic logarithm of 10 by this series, we may take $n=8$ and $v=2$,

then $\frac{v}{2n+v} = \frac{2}{18} = \frac{1}{9}$, and, remarking that

$\log. 8 = 3 \times \log. 2$, we have

$$\text{hyp. log. } 10 = 3 \times \text{hyp. log. } 2 + 2 \left(\frac{1}{9} + \frac{1}{3} \right)$$

$$\left(\frac{1}{9^3} + \frac{1}{5 \cdot \frac{1}{9^5}} + \&c. \right)$$

This series converges very fast, so that the three first terms are sufficient to give a result true to the seventh decimal; and accordingly their sum, when multiplied by the co-efficient 2, will be found = .2231435. Now we formerly found hyperbolic logarithm 2 = .6931472, § 51, therefore, to the number just now found, let hyperbolic logarithm 8 = 3 hyperbolic logarithm 2 = 2.0794416 be added, and the result, 2.3025851, will be the hyperbolic logarithm of

10; the reciprocal of which, or $\frac{1}{2.3025851} = .4342945$ is the modulus of the common system of logarithms.

56. We may now find the common logarithm of 2; for nothing more is necessary than to multiply its hyperbolic logarithm already found, § 51, by the modulus, .4342945; or divide it by 2.3025851, the reciprocal of the modulus, and, in either way, we find the common logarithm of 2 to be .3010300. The common logarithm of

5 may now also be found; for, since $5 = \frac{10}{2}$,

we have $\log. 5 = \log. 10 - \log. 2 = 1 - .3010300 = .6989700$.

57. We have investigated a series, by which the logarithm of $n+v$ may be found from that of n ; or the logarithm of n from that of $n+v$. We shall now investigate another series, by means of which, and the logarithms of any two of these three quantities, $n-v$, n , $n+v$, the logarithm of the remaining quantity may be found.

Because $\frac{n^2}{(n-v)(n+v)} = \frac{n^2}{n^2-v^2}$, therefore

$$2 \log. n - \log. (n-v) - \log. (n+v) = \log. \frac{n^2}{n^2-v^2}. \text{ Let us suppose } \frac{n^2}{n^2-v^2} = z, \text{ then } z -$$

$$1 = \frac{v^2}{n^2-v^2}, \quad z+1 = \frac{2n^2-v^2}{n^2-v^2} \text{ and } \frac{z-1}{z+1}$$

$$= \frac{2n^2-v^2}{2n^2-v^2}. \text{ Let these values of } z \text{ and } \frac{z-1}{z+1} \text{ be}$$

inserted in the series of § 50, and we presently have $2 \log. n = \log. (n-v) + \log. (n+v) + 2M \times \left\{ \frac{v^2}{2n^2-v^2} + \frac{1}{3} \left(\frac{v^2}{2n^2-v^2} \right)^3 + \&c. \right\}$

58. We shall conclude this section by showing the application of the three series which have been investigated in §§ 51, 54, and 57, to the calculation of the common logarithms of

the numbers between 1 and 10; and, as it will be most convenient in practice to compute the common logarithm directly, instead of first finding the hyperbolic logarithm, and afterwards multiply by the modulus of the common system, we shall put down each series in a form suited to that purpose. The value of v in the two series last found will generally be unity, we shall therefore put them down under that form.

Let $N = 2$ $M = .8685889638 + \&c.$

Let $n - 1, n, n + 1$ denote three numbers.

Put $\frac{n-1}{n+1} = A; \frac{1}{2n+1} = B; \text{ and}$

$$\frac{1}{2n^2-1} = C.$$

$$\text{I. Log. } n = NA + \frac{NA^3}{3} + \frac{NA^5}{5} + \frac{NA^7}{7}$$

+ &c.

$$\text{II. Log. } (n+1) = \log. n. + NB + \frac{NB^3}{3} + \frac{NB^5}{5} + \&c.$$

$$\text{III. } 2 \text{ Log. } n = \log. (n-1) + \log. (n+1)$$

$$NC + \frac{NC^3}{3} + \frac{NC^5}{5} + \&c.$$

59. *Example 1.* It is required to find the common logarithm of 2, to six places of figures, by the first series.

Here $n = 2, A = \frac{n-1}{n+1} = \frac{1}{3}$, and the calculation will stand as below.

$$N = .8685890 \quad NA = .2895297$$

$$NA^3 = .0321700 \quad \frac{NA^3}{3} = .0107233$$

$$NA^5 = .0035944 \quad \frac{NA^5}{5} = .0007199$$

$$NA^7 = .0003972 \quad \frac{NA^7}{7} = .0000567$$

$$NA^9 = .0000441 \quad \frac{NA^9}{9} = .0000049$$

$$NA^{11} = .0000049 \quad \frac{NA^{11}}{11} = .0000004$$

$$.3010299$$

The log. of 2 to six decimals is .301030.

Example 2. Required the common logarithm of 3 to six places of figures, having given the logarithm of 2, by the second series.

$$\text{Here } n+1 = 3, n = 2, B = \frac{1}{2n+1} = \frac{1}{5}.$$

$$N = .8685890 \quad NB = .1737178$$

$$NB^3 = .0069487 \quad \frac{NB^3}{3} = .0023162$$

$$NB^5 = .0002779 \quad \frac{NB^5}{5} = .0000556$$

$$NB^7 = .0000111 \quad \frac{NB^7}{7} = .0000016$$

$$.1760912$$

$$\text{Add log. 2} = .3010299$$

$$.4771211$$

$$\text{log. of 3 to six places is } .477121$$

The logarithms of 2 and 3 being found, we hence find $\log. 4 = 2 \log. 2 = .6020600$

$$\log. 5 = \log. 10 - \log. 2 = .6989700$$

$$\log. 6 = \log. 2 + \log. 3 = .778151$$

$$\log. 8 = 3 \log. 2 = .903090$$

$$\log. 9 = 3 \log. 3 = .954242$$

Example 3. Having given the logarithms of 6 and 8, it is required from these to determine the logarithms of 7 to six places of figures, by the third series.

$$\text{Here } n = 7, C = \frac{1}{2n^2-1} = \frac{1}{97}$$

$$N = .8685890, NC = .0089545$$

$$NC^3 = .0000010 \quad \frac{NC^3}{3} = .0000003$$

$$.0089548$$

$$\log. 6 = .7781513$$

$$\log. 8 = .9030900$$

$$2)1.6901961$$

$$.8450980$$

$$\log. \text{ of } 7 = .845098$$

Instead of finding the logarithm of 7 from the logarithms of 6 and 8, we might have otherwise found it from those of 5 and 6, or those of 8 and 9; in the former case we should have had $n-1 = 5$,

$$n = 6, n+1 = 7, \text{ and } C = \frac{1}{71}; \text{ and therefore}$$

$$\log. 7 = 2 \log. 6 - \log. 5 - \left\{ \frac{N}{71} + \frac{N}{3 \cdot 71^3} + \frac{N}{5 \cdot 71^5} + \&c. \right\} \text{ and in the latter case } n = 1 - 7,$$

$$n = 8, n+1 = 9, C = \frac{1}{127}; \text{ and hence}$$

$$\log. 7 = 2 \log. 8 - \log. 9 - \left\{ \frac{N}{127} + \frac{N}{3 \cdot 127^3} + \&c. \right\}$$

60 & 61. Proceeding in this manner, we may find the logarithms of as many numbers as we please, by deriving them one from another. Thus we have

$$\log. 12 = \log. 2 + \log. 6.$$

$$2 \log. 11 = \log. 10 + \log. 12 + N \left\{ \frac{1}{241} + \frac{1}{3 \cdot 241^3} + \&c. \right\}$$

$$\log. 14 = \log. 2 + \log. 7.$$

$$2 \log. 13 = \log. 12 + \log. 14 + N \left\{ \frac{1}{137} + \frac{1}{3 \cdot 337^3} + \&c. \right\}$$

and in this way might a table of logarithms be calculated; it would however be necessary to compute the logarithms of the numbers at the beginning of the table, to many more figures than were intended to be retained; because, that at each operation, the last figure of the logarithm is set down only to the nearest figure. But, in constructing a table, there are many expedients by which the calculations may be abridged; and these we cannot here find room to explain; and must therefore refer the curious reader to Dr. Hutton's Mathematical Tables, where he will meet with ample information on the subject.

62. *On the method of computing logarithmic sines, cosines, &c.*—A table of the logarithms of numbers being computed, by the methods explained above, one of logarithmic sines, &c., may easily be formed from it, by taking the logarithms of the numbers which represent the natural sines, &c.; and this, the most ready and convenient method, is that which has generally been used. But the logarithmic sines, &c., may be computed independently of a knowledge of the logarithms of natural numbers; or, with the aid of a table of logarithms, they may be obtained without reference to natural sines; and even without the aid of either the one or the other, as we shall shortly explain.

Tables of logarithmic sines, &c., are generally adapted to a radius whose logarithm is 10, but they can be more conveniently computed by assuming the radius unity; and 10 being added to the logarithms computed on that supposition, we have the logarithmic sines, &c., to the common tabular radius.

The length of an arc of 1° , to radius unity is $\cdot 01745329252$, &c.; and this, multiplied by the degrees contained in any given arc, thus the length of that arc, to radius 1, and it is this length which is to be understood in what follows, when the length of an arc is said to be given.

63. It has been shown in the article FLUXIONS, in this work, that if M be $\cdot 43429$, &c., the modulus of the common system of logarithms, then the logarithm of x is the fluent of $M \frac{x}{x}$.

And if x be any arc whose sine is y , then $y = \frac{x^3}{2 \cdot 3} + \frac{x^5}{2 \cdot 3 \cdot 4 \cdot 5} - \frac{x^7}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6}$; &c.;

whence $\dot{y} = \dot{x} - \frac{x^2 \dot{x}}{2} + \frac{x^4 \dot{x}}{2 \cdot 3 \cdot 4} - \frac{x^6 \dot{x}}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6}$,

&c.; and consequently by division $\frac{\dot{x}}{y} = \frac{\dot{x}}{x} - \frac{x \dot{x}}{3} + \frac{x^3 \dot{x}}{45} - \frac{2x^5 \dot{x}}{945} + \frac{x^7 \dot{x}}{4725}$, &c.; and the fluent of $M \frac{\dot{x}}{y}$, or $\log. y = \log. x - M \cdot \left\{ \frac{x^2}{6} + \frac{x^4}{180} \right.$

$\left. + \frac{x^6}{2835} + \frac{x^8}{3780} \right\}$, &c., or the tabular logarithm of $y = 10 + \log. x - M \cdot \left\{ \frac{x^2}{6} + \frac{x^4}{180} + \frac{x^6}{2835} \right.$

$\left. + \frac{x^8}{3780} \right\}$, &c.

64. Otherwise; let $x = \frac{1-y}{1+y}$, y being the natural sine; then $y = \frac{1-x}{1+x}$, and $\dot{y} = \frac{-2\dot{x}}{1-x^2} =$

$-2 \cdot \left\{ \dot{x} + x^3 \dot{x} + x^5 \dot{x} + x^7 \dot{x}, \&c. \right\}$; hence the

fluent of $M \frac{\dot{y}}{y}$, or $\log. y = -2M \cdot \left\{ x + \frac{x^3}{3} \right.$

$\left. + \frac{x^5}{5} + \frac{x^7}{7}, \&c. \right\}$; or the tabular log. of y

$= 10 - 2M \cdot \left\{ x + \frac{x^3}{3} + \frac{x^5}{5} + \frac{x^7}{7}, \&c. \right\}$.

By the former of these series a table of logarithmic sines may be computed without a knowledge of the corresponding natural sines,

and by the latter without the aid of a table of logarithms, the natural sines being given.

65. We shall now show how such a table may be computed without a knowledge of either logarithms or natural sines.—Let x be any given arc, of which it is required to find the logarithmic cosine y . We have $y = 1 - \frac{x^2}{2} +$

$\frac{x^4}{2 \cdot 3 \cdot 4} - \frac{x^6}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6}$; whence $\dot{y} = -x\dot{x} - \frac{x^3 \dot{x}}{3}$

$- \frac{2x^5 \dot{x}}{15} + \frac{17x^7 \dot{x}}{315}, \&c.$; and the fluent of $M \frac{\dot{y}}{y}$,

the log. cosine of $x = -M \left\{ \frac{x^2}{2} + \frac{x^4}{12} + \frac{x^6}{45} \right.$

$\left. + \frac{17x^8}{2520} \right\}$, &c.; and the tabular log. cos. $x = 10$

$- M \cdot \left\{ \frac{x^2}{2} + \frac{x^4}{12} + \frac{x^6}{45} + \frac{17x^8}{2520} \right\}$, &c.; whence

the cosine is obtained without the aid of either logarithms or natural numbers.

As the cosine of an arc is the sine of its complement, this last series will give the sines as well as the cosines of all arcs. Like expressions might easily be deduced for the secants and tangents of arcs; but, our object being simply to show the manner in which such expressions may be obtained, we leave it to the student to apply what we have here given to any other purpose that he may think proper.

Of proportional or logistie logarithms.—These logarithms are adapted to making proportions among sexagesimals, and were particularly intended by Dr. Maskelyne, who first formed them, to facilitate the finding of the Greenwich time, corresponding to the distance of the moon from the sun or a star. If the change in the lunar distance in three hours, as given in the Nautical Almanac, be called m , and it be required to find the time x , corresponding to any other less, but given change n , in the distance, the proportion is $m : n :: 3^h : x = \frac{3^h n}{m}$; whence

$\log. m - \log. n = 3^h - \log. x$. Now 3^h and x being expressed in seconds of time, $\log. 3^h - \log. x$ is the proportional logarithm of x ; and similarly, $\log. 3^h - \log. m$ is the proportional logarithm of m , and $\log. 3^h - \log. n$ is the proportional logarithm of n . Hence $\log. m - \log. n = \text{prop. log. } x \text{ becomes } (\log. 3^h - \text{prop. log. } m) - (\log. 3^h - \text{prop. log. } n) = \text{prop. log. } x$; or $\text{prop. log. } n - \text{prop. log. } m = \text{prop. log. } x$.

Again, if $m : n :: o : p$; m, n, o , and p being any sexagesimal quantities; we should have by reducing them all to the same denomination $p = \frac{o n}{m}$; or $\log. p = \log. o + \log. n - \log. m$; or, changing them for proportional logarithms, $\log. 3^h - \text{prop. log. } p = \log. 3^h - \text{prop. log. } o + \log. 3^h - \text{prop. log. } n - \log. 3^h + \text{prop. log. } m$; or $\text{prop. log. } p = \text{prop. log. } o + \text{prop. log. } n - \text{prop. log. } m$; so that proportions are made with these logarithms precisely as they are with common logarithms.

It follows, from the construction of proportional logarithms, that the logarithm of the largest interval which they are made to comprehend is always nothing; as in those adapted to

three hours, the logarithm of three hours is nothing.

66. Proportional logarithms greatly facilitate the taking of proportional points among sexagesimal quantities, whether in time or in arc; for the hours, minutes, and seconds of time may be considered as degrees, minutes, and seconds of arc.

Example 1.—If the altitude of the sun increase $38^{\circ} 15'$ in $4^{\text{h}} 20'$; what will it increase in $1^{\text{h}} 32'$?

Here the proportion is $4^{\text{h}} 20' \cdot 1^{\text{h}} 32' :: 38^{\circ} 15' : 14^{\circ} 34'$, the answer; or, by proportional logarithms.

$4^{\text{h}} 20'$	prop. log.	1.6185
$1^{\text{h}} 32'$	ditto	2.0378
$38^{\circ} 15'$	ditto	6726
		2.7104
$14^{\circ} 34'$	ditto	2.0919

Example 2.—If the change in the lunar distance in 3^{h} be $1^{\circ} 42' 14''$, what interval of time will correspond to a change of $37' 5''$ in the distance?

$37' 5''$	prop. log.	6861
$1^{\circ} 42' 14''$	ditto	2457

Ans. $1^{\text{h}} 5^{\text{m}} 18^{\text{s}}$ ditto 4404 diff.

SECT. IV.—OF CERTAIN CURVES RELATED TO LOGARITHMS.

68. The discovery of logarithms suggested to mathematicians the idea of curve lines, which might have similar properties to those numbers: hence the origin of the logarithmic, or, as it has been also called, the logistic curve, the nature and properties of which we now proceed to explain.

69. Plate LOGARITHMS, fig. 11. Let CD be the logarithmic curve, and AB its base or abscissa, in which let there be taken any number of points, $P, P', P'', \&c.$, so that the lines $AP, AP', AP'', \&c.$ may constitute an arithmetical progression; then, if perpendiculars or ordinates, $PM, P'M', P''M'', \&c.$, be drawn, meeting the curve in the points $M, M', M'', \&c.$, its nature is such, that the ordinates $PM, P'M', P''M'', \&c.$ constitute a geometrical progression. Hence, and from the properties of logarithms, it appears, that the abscissas $AP, AP', AP'', \&c.$, may be considered as the logarithms of their corresponding ordinates $PM, P'M', P''M'', \&c.$, respectively.

70. That we may express the relation between any abscissa and its corresponding ordinate, by means of an equation, let us put the ordinate at the point A , or $AC, = 1$; take Ap , a given portion of the abscissa, and put pm , the corresponding ordinate, $= a$; take $pp', pp'', \&c.$, in the abscissa, equal to one another, and to Ap ; and let $AP = x \times Ap$; draw the ordinates $p m', p'' m'',$

$\&c.$, also PM . Then, from the nature of continued proportionals, $p' m' = a^2, p'' m'' = a^3, \&c.$, to PM , which will be expressed by a^x ; hence, if we put $PM = y$, we have $a^x = y$ for the equation of the curve.

71. From this equation, as well as by other methods all the properties of the logarithmic curve may be derived. We shall briefly mention some of the most remarkable.

I. The base AB is an asymptote to the curve.

II. If PM be an ordinate to the curve at M , and MQ a tangent at the same point, the subtangent PQ is a constant quantity, and equal to the modulus of the particular logarithmic system, to which the curve belongs.

III. The curvilinear space, comprehended between any two ordinates, AC, PM , is equal to the rectangle contained by PQ the subtangent and $PM - AC$ the difference of the ordinates.

72. There is yet another curve, the properties of which are analogous to those of logarithms; namely, the common hyperbola. Fig. 12. Let C be its centre, and CD, CE , its asymptotes, in either of which, let the points $A, A', A'', \&c.$, be taken, so that $CA, CA', CA'', CA'', \&c.$, may be continued geometrical proportionals; draw $AB, A'B', A''B'', A'''B''', \&c.$, parallel to the other asymptote, meeting the curve in $B, B', B'', B''', \&c.$, and join $CB, CB', CB'', CB''', \&c.$ Then it is demonstrated, by writers on conics, that the hyperbolic sectors $CB B', CB' B'', CB'' B''', \&c.$, are equal to each other; and that the quadrilateral spaces $ABB'A', A'B'B''A'', A''B''B'''A''', \&c.$, are also equal to one another, and to each of the sectors. Hence the sectors, $CB B', CB' B'', CB'' B''', \&c.$, or the quadrilateral figures $ABB'A', ABB''A'', ABB'''A''', \&c.$, have equal differences, while their corresponding abscissas $CA, CA', CA'', \&c.$, have equal ratios to one another, viz. the ratio of CA to CA' : thus the former are analogous to the logarithms of the latter.

73. Let II be the vertex of the hyperbola, draw IG and IK parallel to the asymptotes, so as to form the rhombus $HGCK$; then, putting $CK = 1$, if CP denote any number whatever, and PQ be drawn parallel to the other asymptote, the hyperbolic area $KIIQP$ will serve to express the logarithm of CP , according to a system, the modulus of which is denoted by the area of the rhombus $CKHG$. If the asymptotes contain a right angle, the area of the rhombus will be $= 1$, and thus the hyperbolic areas will express Napier's or the hyperbolic logarithms. But any system of logarithms whatever may be represented by hyperbolic areas; thus, if the asymptotes contain an angle of $25^{\circ} 44' 25'' .5$, the area of the rhombus will be $.43429448, \&c.$, viz. equal to the modulus of the common system of logarithms, and therefore the hyperbolic areas equal to the common logarithms.

LOG-BOARD, a sort of table, divided into several columns, containing the hours of the day and night, the direction of the winds, the course of the ship, and all the material occurrences that

happen during the twenty-four hours, or from noon to noon; together with the latitude by observation. From this table the different officers of the ship are furnished with materials to com-

pile their journals, wherein they likewise insert whatever may have been omitted, or reject what may appear superfluous in the log-board.

LOG-BOOK, a book into which the contents of the log-board are daily copied at noon, together with every circumstance deserving notice that may happen to the ship, or within her cognisance, either at sea or in a harbour, &c. The intermediate divisions or watches of the log-book, containing four hours each, are usually signed by the commanding officers in ships of war or East Indiamen. See **NAVIGATION**.

LOG-GATS, *n. s.* Probably from log, a game. See the extract from Hamner.

Log-gats is the ancient name of a play or game, which is one of the unlawful games enumerated in the thirty-third statute of Henry VIII. It is the same which is now kittle-pins, in which boys often make use of bones instead of wooden pins, throwing at them with another bone instead of bowling.

Hamner.

Did these bones cost no more the breeding, but to play at *loggats* with them?

Shakespeare. Hamlet.

L O G I C.

LOGIC, *n. s.* } Fr. *logique*; Span. Port.
LOGICAL, *adj.* } and Lat. *logica*; Gr. *λογος*.
LOGICALLY, *adv.* } Reason; the art of reason-
LOGICIAN, *n. s.* } ing. Logical is pertaining
LOGOMACHY, *n. s.* } to, or skill in this art. Lo-
gician, a teacher, performer, or proficient in it;
logomachy, verbal contention.

The heretick complained greatly of St. Augustine, as being too full of *logical* subtleties. Hooker.

Talk *logick* with acquaintance,

And practise rhetorick in your common talk.

Shakespeare.

If a man can play the true *logician*, and have as well judgment as invention, he may do great matters.

Bacon.

By a *logick* that left no man any thing which he might call his own, they no more looked upon it as the case of one man, but the case of the kingdom.

Clarendon.

Forced terms of art did much puzzle sacred theology with distinctions, cavils, quiddities; and so transformed her to a mere kind of sophistry and *logomachy*.

Hewel.

In such manner easily, without uttering any *logical* untruth, one may yet grievously calumniate.

Barrow.

Logicians use to class a proposition,
As justices do criminals in prison,
And in as learned authentic nonsense writ
The names of all their modes and figures fit:
For a *logician's* one that has been broke
To ride and pace his reason by the book,
And by their rules, and precepts, and examples,
To put his wits in any kind of trammels. Butler.

Those who in a *logical* dispute keep in general terms, would hide a fallacy.

Dryden.

The application of whips, racks, gibbets, gallies, dungeons, fire and faggot, in a dispute, may be looked upon as popish refinements upon the old heathen *logic*.

Addison.

If we may believe our *logicians*, man is distinguished from all other creatures by the faculty of laughter.

Id.

How can her old good man
With honor take her back again?
From hence I *logically* gather,
The woman cannot live with either. Prior.

Here foamed rebellious *Logic*, gagged and bound,
There stript, fair Rhetorick languished on the ground.

Pope.

Each staunch polemick stubborn as a rock,
Each fierce *logician* still expelling Locke,
Came whip and spur.

Id. Dunciad.

A *logician* might put a case that would serve for an exception.

Swift.

Logick is the art of using reason well in our enquiries after truth, and the communication of it to others.

Watts's *Logick*.

Add to these incentives to social life, my reputation for bookish knowledge, a certain wild *logical* talent, and a strength of thought, something like the rudiments of good sense; and it will not seem surprising that I was generally a welcome guest where I visited.

Burns.

Vociferated *logic* kills me quite,
A noisy man is always in the right—
I twirl my thumbs, fall back into my chair,
Fix on the wainscot a distressful stare,
And, when I hope his blunders are all out,
Reply discreetly—to be sure—no doubt!

Couper.

But hold, why deign I to dispute

With such a scoundrel of a brute?

Logic is lost upon a knave,

Let action prove the law our slave. • Beattie.

LOGIC, accurately defined, is the art of thinking and reasoning justly: it traces the progress of our knowledge from our first and most simple conceptions through all their different combinations, and all those numerous deductions that result from variously comparing them one with another.

The object of this science therefore is, to explain the nature of the human mind, and the proper manner of conducting its several powers, in order to attain truth and knowledge. It lays open those errors to which we are liable through inattention; and teaches us how to distinguish between truth and the appearance of it. By these means we become acquainted with the nature and power of the understanding; see what things lie within its reach; where we may attain certainty and demonstration; and when we must be contented with probability.

This science has been generally divided into four parts, viz. perception, judgment, reasoning, and method; which comprehend the whole operations of the Mind. The late professor Brown resolves judgment and reason into relative suggestion. See Lectures on the Philosophy of the Human Mind, vol. iii. lec. 51. He also supplies us with an able view of the rationale of logic, which the reader will find in a condensed form at the end of this paper.

PART I. OF PERCEPTION.

Man is surrounded with a variety of objects, which, acting differently upon his senses, convey distinct impressions into the mind, and thereby

rouse the attention and notice of the understanding. By reflecting too on what passes within us, we become sensible of the operations of our own minds, and attend to them as a new set of impressions. But in all this there is only bare consciousness. The mind, without proceeding any farther, takes notice of the impressions that are made upon it, and views things in order as they present themselves one after another. This attention of the understanding to the objects acting upon it, whereby it becomes sensible of the impressions they make, is called by logicians perception; and the notices themselves, as they exist in the mind, and are there treasured up to be the materials of thinking and knowledge, are distinguished by the name of ideas. In the article *METAPHYSICS*, it will be shown at large how the mind, being furnished with ideas, contrives to diversify and enlarge its stock: we have here chiefly to consider the means of making known our thoughts to others; that we may not only understand how knowledge is acquired, but also in what manner it may be communicated with the greatest certainty and advantage.

SECT. I.—OF WORDS, CONSIDERED AS THE SIGNS OF IDEAS.

1. Our ideas, though manifold and various, being all within our own breasts, invisible to others, cannot of themselves be made to appear. But God, designing us for society, has provided us with organs fitted to frame articulate sounds, and has given us a capacity of using these sounds as signs of internal conceptions. Hence spring words and language: for, having once fixed upon any sound to stand as the mark of an idea in the mind, custom by degrees establishes such a connexion between them, that the appearance of the idea in the understanding always brings to our remembrance the sound or name by which it is expressed; as in like manner the hearing of the sound never fails to excite the idea for which it is made to stand. And thus it is easy to conceive how a man may record his own thoughts, and bring them again into view in any succeeding period of life. For this connexion being once settled, as the same sounds will always serve to excite the same ideas; if he can but register his words in the order and disposition in which the present train of his thoughts presents itself to his imagination, it is evident he will be able to recal his thoughts at pleasure, and that too in the very manner of their first appearance. Accordingly we find, that the inventions of writing and printing, by enabling us to fix and perpetuate such perishable things as sounds, have furnished us with the means of giving a kind of permanency to the transactions of the mind, so that they may be subjected to our review in the same manner as any other objects of nature.

2. But, besides the ability of recording our own thoughts, there is this farther advantage in the use of external signs, that they enable us to communicate our thoughts to others, and to receive information of what passes in their breasts. For any number of men, having agreed to establish the same sounds as signs of the same ideas, it is evident that the repetition of these sounds must excite the like perception in each, and

create a perfect correspondence of thoughts. When, for instance, any ideas succeed one another in my mind, if the names by which I am wont to express them have been annexed by those with whom I converse to the very same set of ideas, nothing is more evident than that, by repeating those names, according to the tenor of my present conceptions, I shall raise in their minds the same course of thought that has taken possession of my own. So that we here clearly perceive how a man may communicate his sentiments, knowledge, and discoveries to others, if the language in which he converses be extensive enough to mark all the ideas and operations of his mind. But as this is not always the case, and men are often obliged to invent terms of their own to express new views and conceptions of things; it may be asked, how in these circumstances we can become acquainted with the thoughts of another, when he makes use of words to which we have never annexed any ideas, and which of course can raise no perceptions in our minds? To unveil this mystery, and give some insight into the foundation, growth, and improvement of language, the following observations will be found of considerable moment.

3. First, that no word can be to any man the sign of an idea, till that idea comes to have a real existence in his mind. For names being only so far intelligible as they denote known internal conceptions, where they have none such to answer them, they are plainly sounds without signification, and of course convey no instruction or knowledge. But no sooner are the ideas to which they belong raised in the understanding, than, finding it easy to connect them with the established names, we can join in any agreement of this kind made by others, and thereby enjoy the benefit of their discoveries. The first thing therefore to be considered is, *how* these ideas may be excited in the mind; that, being there, we may learn to connect them with their appropriated sounds, and so become capable of understanding others, when they make use of these sounds in communicating their thoughts. To comprehend this distinctly, it will be necessary to attend to the division of our ideas into the simple and complex. And first, as for our simple ideas; they originate in sensation and reflexion. If therefore any of these have as yet no being in the understanding, it is impossible by words to excite them there. A man who had never felt the sensation of heat, could not be brought to comprehend that sensation by any thing we might say to explain it. If we would really produce the idea in him, it must be by applying the proper object to his senses, and bringing him within the influence of a hot body. When this is done, and experience has taught him the perception to which men have annexed the name heat, it then becomes to him the sign of that idea, and he thenceforth understands the meaning of the term, which, before, all the words in this world would not have been sufficient to convey into his mind. The case is the same in respect of light and colors. A man born blind, and thereby deprived of the only conveyance for ideas of this class, can never be brought to understand the names by which they are ex-

pressed. The reason is plain: they stand for ideas that have no existence in his mind; and, as the organ appropriated to their reception is wanting, all other contrivances are vain, nor can they by any force or description be raised in his imagination. But it is quite otherwise in our complex notions: for these being no more than certain combinations of simple ideas, put together in various forms; if the original ideas out of which the collections are made have already found admission into the understanding, and the names serving to express them are known; it will be easy, by enumerating the several ideas concerned in the composition, and marking the order and manner in which they are united, to raise any complex conception in the mind. Thus the idea answering to the word rainbow may be readily excited in the imagination of another who has never seen the appearance itself, by barely describing the figure, largeness, position, and order of colors; if we suppose these several simple ideas, with their names, sufficiently known to him.

4. This leads to a second observation upon this subject, namely, that words standing for complex ideas are all definable, but those by which we denote simple ideas are not; for simple ideas being perceptions, which have no other entrance into the mind than by sensation or reflection, can only be obtained by experience, from the several objects of nature proper to produce those perceptions in us. Words indeed may serve to remind us of them, if they have already found admission into the understanding, and if their connexion with the established names is known; but they can never give them their original being or existence there. Hence, when any one asks the meaning of a word denoting a simple idea, we pretend not to explain it to him by a definition, knowing that to be impossible; but, supposing him already acquainted with the idea, and only ignorant of the name by which it is called, we either mention it to him by some other name with which we presume he knows its connexion, or appeal to the object where the idea itself is found. Thus, were any man to ask the meaning of the word white, we should tell him it stood for the same idea as albus in Latin, or blanc in French; or, if we thought him a stranger to these languages, we might appeal to an object producing the idea, by saying it denoted the color we observe in snow or milk. But this is by no means a definition of the word, exciting a new idea in his understanding; but merely a contrivance to remind him of a known idea, and teach him its connexion with the established name. For if the ideas after which he enquires have never yet been raised in his mind; as suppose one, who had seen no other colors than black and white, should ask the meaning of the word scarlet; it is easy to perceive, that it would be no more possible to make him comprehend it by words, or by a definition, than to introduce the same perception into the imagination of a man born blind. The only method in this case is, to present some object, by looking at which the perception itself may be excited; and thus he will learn both the name and the idea together.

5. But how comes it to pass, that men agree in the names of their simple ideas, seeing they cannot view the perceptions in one another's minds, nor make known these perceptions by words to others? The effect is produced by experience and observation. Thus finding, for instance, that the name of heat is annexed to that sensation which men feel when they approach the fire, I make it also the sign of the sensation excited in me by such an approach, nor have any doubt but it denotes the same perception in my mind as in theirs. For we are naturally led to imagine, that the same objects operate alike upon the organs of the human body, and produce a uniformity of sensations. No man fancies that the idea raised in him by the taste of sugar, and which he calls sweetness, differs from that excited in another by the like means; or that wormwood, to whose relish he has given the epithet bitter, produces in another the sensation which he denotes by the word sweet. Presuming, therefore, upon this conformity of perceptions, when they arise from the same objects, we easily agree as to the names of our simple ideas: and if at any time, by a more narrow scrutiny into things, new ideas of this class come in our way, which we choose to express by terms of our own invention; these names are explained, not by a definition, but by referring to the objects whence the ideas themselves may be obtained.

6. Being in this manner furnished with simple ideas, and the names by which they are expressed, the meaning of terms that stand for complex ideas is easily acquired, because the ideas themselves answering to these terms may be conveyed into the mind by definitions. For our complex notions are only certain combinations of simple ideas. When, therefore, these are enumerated, and the manner in which they are united into one conception explained, nothing more is wanting to raise that conception in the understanding; and thus the term denoting it comes of course to be understood. And here it is worth while to reflect a little upon the wisdom and goodness of the Deity, in thus furnishing us with the very aptest means of communicating our thoughts. For were it not so ordered, that we could thus convey our complex ideas to one another by definitions, it would in many cases be impossible to make them known at all. This is apparent in those ideas which are the proper work of the mind. For as they exist only in the understanding, and have no real objects in nature in conformity to which they are framed; if we could not make them known by description, they must lie forever hid within our own breasts, and be confined to the narrow limits of a single mind. All the fine scenes that arise from time to time in the poet's fancy, and, by his lively painting, give such entertainment to his readers; were he destitute of this faculty of laying them open to the view of others by words and description, could not extend their influence beyond his own imagination, or give joy to any but himself.

7. There is this additional advantage, in the ability we enjoy of communicating our complex notions by definitions; that as these make by far the largest class of our ideas, and most frequently occur in the progress and improvement

of knowledge, so they are by these means imparted with the greatest readiness, than which nothing would tend more to the increase and spreading of science: for a definition is soon examined; and, if the terms of it are well understood, the idea itself finds an easy admission into the mind. Whereas, in simple perceptions, where we are referred to the objects producing them, if these be not accessible, as is sometimes the case, the names by which they are expressed must remain empty sounds. But new ideas of this class occurring very rarely in the sciences, they seldom create any great obstructions. It is otherwise with our complex notions: for every step we take leading us into new combinations and views of things, it becomes necessary to explain these to others, before they can be made acquainted with our discoveries: and as the manner of defining is easy, requiring no apparatus but words, which are always ready, and at hand, we can with less difficulty remove such obstacles as might arise from terms of our own invention, when they are made to stand for new complex ideas suggested to the mind by some present train of thinking. And thus we see how we may become acquainted with the thoughts of another, when he makes use of words to which we have as yet joined no ideas. If the terms denote simple perceptions, he must refer us to those objects of nature whence the perceptions themselves are to be obtained; but, if they stand for complex ideas, their meaning may be explained by a definition.

SECT. II.—OF DEFINITIONS.

1. A definition is the unfolding of some conceptions of the mind, answering to the word or term made use of as its sign. Now as, in exhibiting any idea to another, it is necessary that the description be such as may excite that precise idea in his mind; it is plain that definitions, properly speaking, are not arbitrary, but confined to the representing of certain determinate settled notions, annexed by the speaker or writer to the words he uses. As, however, it is universally allowed, that the signification of words is perfectly arbitrary, and not the effect of any natural and necessary connexion between them and the ideas for which they stand; some may perhaps wonder why definitions are not so too. To unravel this difficulty, and show distinctly what is and what is not arbitrary in speech, we must carefully distinguish between the connexion of our words and ideas, and the unfolding of the ideas themselves.

2. First, as to the connexion of our words and ideas; this, it is plain, is purely arbitrary. When, for instance, we have in our minds the idea of any particular species of metals, our calling it by the name of gold is an effect of the voluntary choice of men speaking the same language, and not of any peculiar aptness in that sound to express that idea. Other nations we find make use of different sounds, and with the same effect. Thus *aurum* denotes that idea in Latin, and *or* in French; and even the word *gold* itself would have as well served to express the idea of that metal which we call silver, had custom in the beginning established it.

3. But, although we are thus entirely at liberty in connecting any idea with any sound, yet it is quite otherwise in unfolding the ideas themselves. For every idea having a precise appearance of its own, by which it is distinguished from every other idea; it is manifest that, in representing it to others, we must study such a description as shall exhibit that peculiar appearance. When we have formed the idea of a figure bounded by four equal sides, joined together at right angles, we may express that idea by any sound, and call it either a square or a triangle. But whichever of these names we use, so long as the idea is the same, the description by which we would signify it to another must be so too. Let it be called square or triangle, it is still a figure having four equal sides, and all its angles right ones. Hence we clearly see what is and what is not arbitrary in the use of words. The establishing of any sound, as the mark of some determinate idea in the mind, is the effect of free choice, and a voluntary combination among men: and, as different nations make use of different sounds to denote the same ideas, hence proceeds all that variety of languages which we meet with in the world. But, when a connexion between our ideas and words is once settled, the unfolding of the idea answering to any word, which properly constitutes a definition, is by no means an arbitrary thing: for here we are bound to exhibit that precise conception which either the use of language, or our own particular choice, has annexed to the term we use.

4. Thus it appears, that definitions, considered as descriptions of ideas in the mind, are steady and invariable, being bounded to the representation of these precise ideas. But then, in the application of definitions to particular names, we are altogether left to our own free choice; because, as the connecting of any idea with any sound is perfectly arbitrary, the applying the description of that idea to that sound must be so too. When, therefore, logicians tell us that the definition of the name is arbitrary, they mean no more than this; that as different ideas may be connected with any term, according to the good pleasure of him that uses it, so may different descriptions be applied to the term, suitable to the ideas thus connected. But this connexion being settled, and the term considered as the sign of some fixed idea in the understanding, we are no longer left to arbitrary explications, but must study such a description as corresponds with that precise idea. Now this alone, according to what has been before laid down, ought to be accounted a definition. What seems to have occasioned no small confusion in this matter, is, that many explanations of words, where no idea is unfolded, but merely the connexion between some word and idea asserted, have yet been dignified with the name of definitions. Thus, when we say that a clock is an instrument by which we measure time; that is by some called a definition: and yet it is plain that we are previously supposed to have an idea of this instrument, and only taught that the word *clock* serves in common language to denote that idea. By this rule all explications of words in our dictionaries will be definitions, nay, the names of

even simple ideas may be thus defined. White, we may say, is the color we observe in snow or milk; heat, the sensation produced by approaching the fire; and so in innumerable other instances. But these, and all others of the like kind, are by no means definitions, exciting new ideas in the mind, but merely contrivances to remind us of known ideas, and teach their connexion with the established names.

5. But now, in definitions properly so called, we first consider the term we use as the sign of some inward conception, either annexed to it by custom, or by our own free choice; and then the business of the definition is to unfold and explain that idea. As, therefore, the whole art lies in giving just and true copies of our ideas; a definition is then said to be perfect, when it serves distinctly to excite the idea described in the mind of another, even supposing him before wholly unacquainted with it. This point settled, let us next enquire what those ideas are which are capable of being thus unfolded? In the first place, it is evident, that all our simple ideas are necessarily excluded. We have seen that experience alone is to be consulted here, so that if either the objects whence they are derived come not in our way, or the avenues appointed by nature for their reception are wanting, no description is sufficient to convey them into the mind. But where the understanding is already supplied with these original and primitive conceptions, as they may be united together in an infinity of different forms, so may all their several combinations be distinctly laid open, by enumerating the simple ideas concerned in the various collections, and tracing the order and manner in which they are linked one to another. Now these combinations of simple notions constitute what we call our complex notions; whence it is evident, that complex ideas, and these alone, admit of that kind of description which goes by the name of a definition.

6. Definitions, then, are representations of our ideas; and, as these representations are possible only when the ideas themselves are complex, it is obvious, that definitions cannot have place but where we make use of terms standing for such complex ideas. But, our complex ideas being nothing more than different combinations of simple ideas, we then know and comprehend them perfectly, when we know the several simple ideas of which they consist, and can so put them together in our minds, as may be necessary towards the framing of that peculiar connexion which gives every idea its distinct and proper appearance.

7. Two things are therefore required in every definition: 1st, That all the original ideas, out of which the complex one is formed, be distinctly enumerated; and, 2dly, That the order and manner of combining them into one conception be clearly explained. Where a definition has these requisites, nothing is wanting to its perfection; because every one who reads it and understands the terms, seeing at once what ideas he is to join together, and also in what manner, can at pleasure form in his own mind the complex conception answering to the term defined. Let us, for instance, suppose the word square to stand for that idea by which we represent to ourselves a

figure whose sides subtend quadrants of a circumscribed circle. The parts of this idea are the sides bounding the figure. These must be four in number, and all equal among themselves, because they are each to subtend a fourth part of the same circle. But, besides these component parts, we must also take notice of the manner of putting them together, if we would exhibit the precise idea for which the word square here stands. For four equal right lines, anyhow joined, will not subtend quadrants of a circumscribed circle. A figure with this property must have its sides standing also at right angles. Taking in therefore this last consideration, respecting the manner of combining the parts, the idea is fully described, and the definition thereby rendered complete. For a figure bounded by four equal sides, joined together at right angles, has the property required; and is moreover the only right-lined figure to which that property belongs.

8. It will now be obvious to every one, in what manner we ought to proceed, in order to arrive at just and adequate definitions. 1st, We are to take an exact view of the idea to be described, trace it to its original principles, and mark the several simple perceptions that enter into its composition. 2dly, We are to consider the particular manner in which these elementary ideas are combined, in order to form that precise conception for which the term we make use of stands. When this is done, and the idea wholly unfolded, we have only to transcribe the appearance it makes to our own minds. Such a description, by distinctly exhibiting the order and number of our primitive conceptions, cannot fail to excite at the same time, in the mind of every one that reads it, the complex idea resulting from them; and therefore attains the true and proper end of a definition.

SECT. III.—OF THE COMPOSITION AND RESOLUTION OF OUR IDEAS, AND THE RULES OF DEFINITION THENCE ARISING.

1. The rule laid down in the last section is general, extending to all possible cases; and is indeed that to which alone we can have recourse where any doubt or difficulty arises. It is not, however, necessary that we should practise it in every case. Many of our ideas are extremely complicated, insomuch that to enumerate all the simple perceptions, out of which they are formed, would be a very troublesome and tedious work. For this reason logicians have established certain compendious rules of defining, of which we shall give some account. But, for the better understanding of what follows, it is necessary to observe, that there is a certain gradation in the composition of our ideas. The mind of man is very limited in its views, and cannot take in a great number of objects at once. We must therefore proceed by steps, and make our first advances subservient to those which follow. Thus, in forming our complex notions, we begin at first with but a few simple ideas, such as we can manage with ease, and unite them together into one conception. When we are provided with a sufficient stock of these, and have by habit and use rendered them familiar to our minds, they become the component parts of other

ideas still more complicated, and form what we call a second order of compound notions. This process may be continued to any degree of composition we please, mounting from one stage to another, and enlarging the number of combinations.

2. But, in a series of this kind, whoever would acquaint himself perfectly with the last and highest order of ideas, finds it the most expedient method to proceed gradually through all the intermediate steps. For, were he to take any very compound idea to pieces, and, without regard to the several classes of simple perceptions that have already been formed into distinct combinations, break it at once into its original principles, the number would be so great as perfectly to confound the imagination, and overcome the utmost reach and capacity of the mind. When we see a prodigious multitude of men jumbled together in crowds, without order or any regular position, we find it impossible to arrive at an exact knowledge of their number. But if they are formed into separate battalions, and so stationed as to fall within the deliberate survey of the eye, by viewing them successively and in order, we come to an easy and certain determination. It is the same in our complex ideas. When the original perceptions, out of which they are framed, are very numerous, it is not enough that we take a view of them in loose and scattered bodies; we must form them into distinct classes, and unite these classes in a just and orderly manner, before we can arrive at a true knowledge of the compound notions resulting from them.

3. This gradual progress of the mind to its compound notions, through a variety of intermediate steps, plainly points out the manner of conducting the definitions by which these notions are conveyed into the minds of others. For as the series begins with simple and easy combinations, and advances through a succession of different orders, rising one above another in the degree of composition, it is evident that, in a train of definitions expressing these ideas, a like gradation is to be observed. Thus the complex ideas of the lowest order can no otherwise be described than by enumerating the simple ideas out of which they are made, and explaining the manner of their union. But then, in the second or any other succeeding order, as they are formed out of those gradual combinations, and constitute the inferior classes, it is not necessary, in describing them, to mention one by one all the simple ideas of which they consist. They may be more distinctly and briefly unfolded, by enumerating the compound ideas of a lower order, from whose union they result, and which are all supposed to be already known in consequence of previous definitions. Here then it is, that the logical method of defining takes place; which, that it may be the better understood, we shall explain somewhat more particularly the several steps and gradations of the mind in compounding its ideas, and thence deduce that peculiar form of a definition which logicians have thought fit to establish.

4. All the ideas we receive from the several objects of nature that surround us represent distinct individuals. These individuals, when com-

pared together, are found in certain particulars to resemble each other. Hence, by collecting the resembling particulars into one conception, we form the notion of a *species*. And here let it be observed, that this last idea is less complicated than that by which we represent any of the particular objects contained under it. For the idea of the species excludes the peculiarities of the several individuals, and retains only such properties as are common to them all. Again, by comparing several species together, and observing their resemblance, we form the idea of a *genus*; where, in the same manner as before, the composition is lessened, because we leave out what is particular to the several species compared, and retain only the particulars wherein they agree. It is easy to conceive the mind proceeding thus from one step to another, and advancing through its several classes of general notions, until at last it comes to the highest genus of all, denoted by the word *being*, where the bare idea of existence only is concerned.

5. In this procedure we see the mind unraveling a complex idea, and tracing it in the ascending scale, from greater or less degrees of composition, until it terminates in one simple perception. If now we take the series the contrary way, and, beginning with the last or highest genus, carry our view downward, through all the inferior genera and species, quite to the individuals, we shall thereby arrive at a distinct apprehension of the conduct of the understanding in compounding its ideas. For, in the several classes of our perceptions, the highest in the scale is for the most part made up of but a few simple ideas, such as the mind can take in and survey with ease. This first general notion, when branched out into the different subdivisions contained under it, has in every one of them something peculiar, by which they are distinguished among themselves; insomuch that, in descending from the genus to the species, we always superadd some new idea, and thereby increase the degree of composition. Thus the idea denoted by the word figure is of a very general nature, and composed of but few simple perceptions, as implying no more than space every where bounded. But if we descend farther, and consider the boundaries of this space, as that they may be either lines or surface, we distinguish the several species of figure. For, where the space is bounded by one or more surfaces, we give it the name of a solid figure; but, where the boundaries are lines, it is called a plain figure.

6. In this view of things it is evident, that the species is formed by superadding a new idea to the genus. Here, for instance, the genus is circumscribed space. If now to this we superadd the idea of a circumscription by lines, we frame the notion of that species of figures which are called plain; but, if we conceive the circumscription to be by surfaces, we have the species of solid figures. This superadded idea is called the specific difference, not only as it serves to divide the species from the genus, but because, being different in all the several subdivisions, we thereby also distinguish the species one from another. And as it is likewise that conception, which, by being joined to the general idea, completes the

notion of the species; hence it is plain, that the genus and specific difference are to be considered as the proper and constituent parts of the species. If we trace the progress of the mind still farther, and observe it advancing through the inferior species, we shall find its manner of proceeding to be always the same. For every lower species is formed by superadding some new idea to the species next above it; so that, in this descending scale of our perceptions, the understanding passes through different orders of complex notions, which become more and more complicated at every step it takes. Let us resume here, for instance, the species of plain figures. They imply no more than space bounded by lines. But if we take in an additional consideration of the nature of these lines, as whether they are right or curves, we refer to the subdivisions of plain figures, distinguished by the names of rectilinear, curvilinear, and mixtilinear.

7. And here we must observe, that though plain figures, when considered as one of those branches that come under the notion of figure in general, take the name of a species; yet, compared with the classes of curvilinear, rectilinear, and mixtilinear, into which they themselves may be divided, they really become a genus of which the above mentioned subdivisions constitute the several species. These species, in the same manner as in the case of plain and solid figures, consist of the genus and specific difference as their constituent parts. For, in the curvilinear kind, the curvity of the lines bounding the figure makes what is called the specific difference; to which if we join the genus, which here is a plain figure or space circumscribed by lines, we have all that is necessary towards completing the notion of this species. We are only to take notice that this last subdivision, having two genera above it, viz. plain figure, and figure in general, the genus joined with the specific difference, in order to constitute the species of curvilinears, is that which lies nearest to the said species. It is the notion of plain figure, and not of figure in general, that, joined with the idea of curvity, makes up the complex conception of curve-lined figures. For in this descending scale of our ideas, figure in general, plain figures, curve-lined figures, the first two are considered as general in respect of the third: and the second in order, or that which stands next to the third, is called the nearest genus. But now as it is this second idea, which, joined with the notion of curvity, forms the species of curve-lined figures, it is plain, that the third or last idea in the series is made up of the nearest genus and specific difference. This rule holds invariably however far the series is continued; because, in a train of ideas thus succeeding one another, all that precede the last are considered as so many genera in respect of that last, and the last itself is always formed by superadding the specific difference to the genus next it.

8. Here then we have a universal description, applicable to all our ideas of whatever kind, from the highest genus to the lowest species. For, taking them in order downwards from the said general idea, they every where consist of the genus proximum, and differentia specifica,

as logicians express them. But when we come to the lowest species of all, comprehending under it only individuals, the superadded idea by which these individuals are distinguished one from another no longer takes the name of the specific difference. For here it serves not to denote distinct species, but merely a variety of individuals, each of which, having a particular existence of its own, is therefore numerically different from every other of the same kind. And hence it is that, in this last case, logicians call the superadded idea by the name of the numeral difference, so that, as the idea of a species is made up of the nearest genus and specific difference, the idea of an individual consists of the lowest species and numeric difference. Thus the circle is a species of curve-lined figures, and what we call the lowest species as comprehending under it only individuals. Circles in particular are distinguished from one another by the length and position of their diameters. The length therefore and position of the diameter of a circle form what logicians call the numerical difference; because, these being given, the circle itself may be described, and an individual thereby constituted.

9. Thus the mind, in compounding its ideas, begins, we see, with the most general notions, which, consisting of but a few simple notices, are easily combined and brought together into one conception. Thence it proceeds to the species comprehended under this general idea, and these are formed by joining together the genus and specific difference. And as it often happens that these species may be still farther subdivided, and run on in a long series of continued gradations, producing various orders of compound perceptions, so all these several orders are regularly and successively formed by annexing in every step the specific difference to the nearest genus. When by this method of procedure we are come to the lowest order of all, by joining the species and numeric difference, we frame the ideas of individuals. And here the series necessarily terminates, because it is impossible any farther to bound or limit our conceptions. This view of the composition of our ideas, representing their constituent parts in every step of the progression, naturally points out the true and genuine form of a definition. For as definitions are merely descriptions of the ideas for which the terms defined stand, and as ideas are then described, when we enumerate distinctly the parts of which they consist, it is plain that, by making our definitions follow one another according to the natural train of our conceptions, they will be subject to the same rules, and keep pace with the ideas they describe.

10. As, therefore, the first order of our compound notions, or the ideas that constitute the highest genera in the different scales of perception, are formed by uniting together a certain number of simple notices, so the terms expressing these genera are defined by enumerating the simple notices so combined. And as the species comprehended under any genus, or the complex ideas of the second order, arise from superadding the specific difference to the said general idea, so the definition of the names of the

species consists in a detail of the ideas of the specific difference connected with the term of the genus. For, the genus having been before defined, the term by which it is expressed stands for a known idea, and may therefore be introduced into all subsequent definitions, in the same manner as the names of simple perceptions. It will now be sufficiently obvious, that the definitions of all the succeeding orders of compound notions will every where consist of the term of the nearest genus, joined with an enumeration of the ideas that constitute the specific difference; and that the definition of individuals unites the names of the lowest species with the terms by which we express the ideas of the numeric difference.

11. Here then we have the true and proper form of a definition, in all the various orders of conception. This is that method of defining which is commonly called *logical*, and which we see is perfect in its kind, as it presents a full and adequate description of the idea for which the term defined stands.

PART II. OF JUDGMENT.

SECT. I.—OF THE GROUNDS OF HUMAN JUDGMENT.

1. The mind being furnished with ideas, its next step in the way to knowledge is the comparing of these ideas together, in order to judge of their agreement or disagreement. In this joint view of our ideas, if the relation is such as to be immediately discoverable by the bare inspection of the mind, the judgments thence obtained are called *intuitive*, from a word that denotes to *look at*; for, in this case, a mere attention to the ideas compared suffices to let us see how far they are connected or disjointed. Thus, that the whole is greater than any of its parts, is an intuitive judgment; nothing more being required to convince us of its truth than an attention to the ideas of whole and part. And this too is the reason why we call the act of the mind forming these judgments *intuition*; as it is indeed no more than an immediate perception of the agreement or disagreement of any two ideas.

2. But here it is to be observed, that our knowledge of this kind respects only our ideas, and the relations between them; and therefore can serve only as a foundation to such reasonings as are employed in investigating those relations. Now it so happens, that many of our judgments are respecting facts, and the real existence of things, which cannot be traced by the bare contemplation of our ideas. It does not follow, because I have the idea of a circle in my mind, that therefore a figure answering to that idea has a real existence in nature. I can form to myself the notion of a centaur or golden mountain, but never imagine on that account that either of them exists. What then are the grounds of our judgment in relation to facts? Experience and testimony. By experience we are informed of the existence of the several objects which surround us, and operate upon our senses. Testimony is of a wider extent, and reaches not only to objects beyond the present

sphere of our observation, but also to such as could not without this conveyance have fallen under our cognizance.

3. Here we have three foundations of human judgment, from which the whole system of our knowledge may with ease and advantage be derived. First, intuition, which respects our ideas themselves, and their relations, and is the foundation of that species of reasoning which we call *demonstration*. For whatever is deduced from our intuitive perceptions, by a clear and connected series of proofs, is said to be demonstrated, and produces absolute certainty in the mind. Hence the knowledge obtained in this manner is what we properly term science; because in every step of the procedure it carries its own evidence along with it, and leaves no room for doubt or hesitation. And it is highly worthy of notice, that as the truths of this class express the relation between our ideas, and the same relations must ever and invariably subsist between the same ideas, our deductions in the way of science constitute what we call eternal, necessary, and immutable truths. If it be true that the whole is equal to all its parts, it must be so unchangeably; because the relation of equality, being attached to the ideas themselves, must ever intervene where the same ideas are compared. Of this nature are all the truths of natural religion, morality, and mathematics, and, in general, whatever may be gathered from the bare view and consideration of our ideas.

4. The second ground of human judgment is *experience*; from which we infer the existence of those objects which surround us, and fall under the immediate notice of our senses. When we see the sun, or turn our eyes towards a building, we not only have perceptions of these objects within ourselves, but ascribe to them a real existence out of the mind. It is also by the information of the senses, that we judge of the qualities of bodies; as when we say that snow is white, fire hot, steel hard. For, as we are wholly unacquainted with the internal structure and constitution of the bodies that produce these sensations in us, nay, are unable to trace any connexion between that structure and the sensations themselves, it is evident, that we build our judgments altogether upon observation, ascribing to bodies such qualities as are answerable to the perceptions they excite in us. Not that we ever suppose the qualities of bodies to be things of the same nature with our perceptions; for there is nothing in fire similar to our sensation of heat, or in a sword similar to pain; but that, when different bodies excite in our minds similar perceptions, we necessarily ascribe to these bodies not only an existence independent of us, but likewise similar qualities, of which it is the nature to produce similar perceptions in the human mind. But this is not the only advantage derived from experience; for to it also we are indebted for all our knowledge regarding the co-existence of sensible qualities in objects, and the operations of bodies one upon another. Ivory, for instance, is hard and elastic; this we know by experience, and indeed by that alone. For, being altogether strangers to the true nature both of elasticity

and hardness, we cannot by the bare contemplation of our ideas determine how far the one necessarily implies the other, or whether there may not be a repugnance between them. But, when we observe them to exist both in the same object, we are then assured from experience that they are not incompatible; and when we also find that a stone is hard and not elastic, and that air though elastic is not hard, we also conclude upon the same foundation, that the ideas are not necessarily conjoined, but may exist separately in different objects. In like manner, with regard to the mutual operations of bodies, it is evident that our knowledge is derived entirely from observation. Nitro-muriatic acid dissolves gold, as has been found by frequent trial, nor is there any other way of arriving at the discovery. Naturalists may tell us, if they please, that the parts of nitro-muriatic acid are of a texture apt to insinuate between the corpuscles of gold, and thereby loosen and shake them asunder. If this is a true account of the matter, it will notwithstanding be allowed, that our conjecture in regard to the conformation of these bodies is deduced from the experiment, and not the experiment from the conjecture. It was not from any previous knowledge of the intimate structure of nitro-muriatic acid and gold, and the aptness of their parts to act or be acted upon, that we arrived at the conclusion above mentioned. The internal constitution of bodies is wholly unknown to us; and, could we even surmount this difficulty, yet as the separation of the parts of gold implies something like an active force in the chemical agent, and we are unable to conceive how it comes to be possessed of this activity, the effect must be owned to be altogether beyond our comprehension. But when repeated trials had once confirmed it, so that it was admitted as an established truth, it was then easy for men to spin out theories of their own invention, and contrive such a structure of parts, both for gold and nitro-muriatic acid, as would best serve to explain the phenomenon upon the principles of that system of philosophy which they had adopted.

5. But, though experience is what we may term the immediate foundation of knowledge, yet with respect to particular persons its influence is very narrow and confined. The bodies that surround us are numerous, many of them lie at a great distance, and some quite beyond our reach. Life is so short, and so crowded with cares, that but little time is left for any single man to employ himself in unfolding the mysteries of nature. Hence it is necessary to admit many things upon the testimony of others, which thus becomes the foundation of a great part of our knowledge of body. No man doubts of the power of nitro-muriatic acid to dissolve gold, though perhaps he never himself made the experiment. In these therefore, and such cases, we judge of the facts and operations of nature upon the mere ground of testimony. However, as we can always have recourse to experience where any doubt or scruple arises, this is justly considered as the true foundation of natural philosophy; being indeed the ultimate support on which our assent rests, and to which we appeal when the highest degree of evidence is required.

6. But there are many facts that will not allow of an appeal to the senses; and in this case testimony is the true and only foundation of our judgments. All human actions of whatever kind, when considered as already past, are of the nature here described; because, having now no longer any existence, both the facts themselves, and the circumstances attending them, can be known only from the relations of such as had sufficient opportunities of arriving at the truth. *Testimony* therefore is justly accounted a third ground of human judgment; and as from the other two we have deduced scientific knowledge, so we may from this derive historical; by which we mean, not merely a knowledge of the civil transactions of states and kingdoms, but of all facts whatever, concerning which testimony is the sole foundation of our belief.

SECT. II.—OF AFFIRMATIVE AND NEGATIVE PROPOSITIONS.

1. While the comparing of our ideas is considered merely as an act of the mind, assembling them together, and joining or disjoining them according to the result of its perceptions, we call it judgment; but, when our judgments are put into words, they then bear the name of propositions. A proposition therefore is a sentence expressing some judgment of the mind, whereby two or more ideas are affirmed to agree or disagree. Now, as our judgments include at least two ideas, one of which is affirmed or denied of the other, so must a proposition have terms answering to these ideas. The idea of which we affirm or deny, and of course the term expressing that idea, is called the subject of the proposition. The idea affirmed or denied, as also the term answering it, is called the predicate. Thus in the proposition, God is omnipotent: God is the subject, it being of him that we affirm omnipotence; and omnipotent is the predicate, because we affirm the idea expressed by that word to belong to God.

2. But as, in propositions, ideas are either joined or disjoined, it is not enough to have terms expressing those ideas unless we have also some words to denote their agreement or disagreement. That word in a proposition which connects two ideas together is called the copula; and, if a negative particle be annexed, we thereby understand that the ideas are disjoined. The substantive verb is commonly made use of for the copula, as in the above-mentioned proposition, God is omnipotent: where it represents the copula, and signifies the agreement of the ideas of God and omnipotence. But, if we mean to separate two ideas, then, besides the substantive verb, we must also use some particle of negation to express this repugnance. The proposition, Man is not perfect, may serve as an example of this kind; where, the notion of perfection being removed from the idea of man, the negative particle *not* is inserted after the copula, to signify the disagreement between the subject and predicate.

3. Every proposition necessarily consists of these three parts: but then it is not alike needful that they be all severally expressed in words; because the copula is often included in the term of the predicate, as when we say, he sits; which imports the same as, he is sitting. In the Latin

language, a single word has often the force of a whole sentence. Thus *ambulat* is the same as *Ille est ambulans*; *amo*, as *ego sum amans*; and so in innumerable other instances: by which it appears, that we are not so much to regard the number of words in a sentence, as the ideas they represent, and the manner in which they are put together. For whenever two ideas are joined or disjoined in an expression, though of but a single word, it is evident that we have a subject, predicate, and copula, and of consequence a complete proposition.

4. When the mind joins two ideas, we call it an *affirmative* judgment; when it separates them, a *negative*; and, as any two ideas compared together must necessarily either agree or not agree, it is evident that all our judgments fall under these two divisions. Hence likewise the propositions expressing these judgments are all either affirmative or negative. An affirmative proposition connects the predicate with the subject, as, a stone is heavy; a negative proposition separates them, as, God is *not* the author of evil. Affirmation therefore is the same as joining two ideas together, and this is done by means of the copula. Negation, on the contrary, marks a repugnance between the ideas compared; in which case a negative particle must be called in, to show that the connexion included in the copula does not take place.

5. Hence we see the reason of the rule commonly laid down by logicians, That, in all negative propositions, the negation ought to affect the copula. For as the copula, when placed by itself, between the subject and the predicate, manifestly binds them together, it is evident that, to render a proposition negative, the particles of negation must enter it in such a manner as to destroy this union. In a word, then only are two ideas disjoined in a proposition, when the negative particle may be so referred to the copula as to break the affirmation included in it, and undo that connexion it would otherwise establish. When we say, for instance, No man is perfect, take away the negation, and the copula of itself plainly unites the ideas in the proposition. But, as this is the very reverse of what is intended, a negative mark is added, to show that this union does not here take place. The negation, therefore, by destroying the effect of the copula, changes the very nature of the proposition, inasmuch that, instead of binding two ideas together, it denotes their separation. On the contrary, in this sentence, The man who departs not from an upright behaviour is beloved of God; the predicate, beloved of God, is evidently affirmed of the subject an upright man: so that, notwithstanding the negative particle, the proposition is still affirmative. The reason is plain: the negation here affects not the copula, but, making properly a part of the subject, serves, with other terms in the sentence, to form one complex idea, of which the predicate, beloved of God, is directly affirmed.

SECT. III.—OF UNIVERSAL AND PARTICULAR PROPOSITIONS.

1. The next considerable division of propositions is into universal and particular. Our

ideas, according to what has been already observed in the first part, are all singular as they enter the mind, and represent individual objects. But as by abstraction we can render them universal, so as to comprehend a whole class of things, and sometimes several classes at once; hence the terms expressing these ideas must be in like manner universal. If, therefore, we suppose any general term to become the subject of a proposition, it is evident that whatever is affirmed of the abstract idea, belonging to that term, may be affirmed of all the individuals to which that idea extends. Thus, when we say, men are mortal; we consider mortality, not as confined to one or any number of particular men, but as what may be affirmed without restriction of the whole species. Thus the proposition becomes as general as the idea which makes the subject of it; and indeed derives its universality entirely from that idea, being more or less so, according as this may be extended to more or fewer individuals. But it is further to be observed of these general terms, that they sometimes enter a proposition in their full latitude, as in the example given above; and sometimes appear with a mark of limitation. In this last case we are given to understand, that the predicate agrees not to the whole universal idea, but only to a part of it; as in the proposition, Some men are wise: for here wisdom is not affirmed of every particular man, but restrained to a few of the human species.

2. From this different appearance of the general idea, that constitutes the subject of any judgment, arises the division of propositions into universal and particular. A *universal* proposition is that wherein the subject is some general term taken in its full latitude; inasmuch that the predicate agrees to all the individuals comprehended under it, if it denotes a proper species; and to all the several species and their individuals, if it marks an idea of a higher order. The words all, every, no, none, &c., are the proper signs of this universality; and, as they seldom fail to accompany general truths, so they are the most obvious criterion whereby to distinguish them. All animals have a power of beginning motion. This is a universal proposition; as we know from the word *all* prefixed to the subject *animals*, which denotes that it must be taken in its full extent. Hence the power of beginning motion may be affirmed of all the several species of animals.

3. A *particular* proposition has in like manner some general term for its subject; but with a mark of limitation added, to denote that the predicate agrees only to some of the individuals comprehended under a species, or to one or more of the species belonging to any genus, and not to the whole universal idea. Thus, Some stones are heavier than iron; Some men have an uncommon share of prudence. In the latter of these propositions, the subject, some men, implies only a certain number of individuals, comprehended under a single species. In the former, where the subject is a genus that extends to a great variety of distinct classes, some stones may not only imply any number of particular stones, but also several whole species of stones, inasmuch as there may be not a few with the property there

described. Hence we see that a proposition does not cease to be particular by the predicate's agreeing to a whole species, unless that species, singly and distinctly considered, makes also the subject of which we affirm or deny.

4. There is still one species of propositions that remains to be described, and which the more deserves our notice as it is not yet agreed among logicians, to which of the two classes mentioned above they ought to be referred; namely, singular propositions, or those where the subject is an individual. Of this nature are the following:—Sir Isaac Newton was the inventor of fluxions; This book contains many useful truths. There is some difficulty as to the proper rank of these propositions, because, the subject being taken according to the whole of its extension, they sometimes have the same effect in reasoning as universals. But if it be considered that they are in truth the most limited kind of particular propositions, and that no proposition can with any propriety be called universal but where the subject is some universal idea, we shall not be long in determining to which class they ought to be referred. When we say some books contain useful truths; the proposition is particular, because the general term appears with a mark of restriction. If, therefore, we say, This book contains useful truths; it is evident that the proposition must be still more particular, as the limitation applied in the word *this* is of a more confined nature than in the former case.

5. We see, therefore, that all propositions are either affirmative or negative; nor is it less evident that, in both cases, they may be universal or particular. Hence arises that celebrated fourfold division of them into universal affirmative and universal negative, particular affirmative and particular negative, which comprehends indeed all their varieties. The use of this method of distinguishing them will appear more fully afterwards, when we come to treat of reasoning and syllogism.

SECT. IV. — OF ABSOLUTE AND CONDITIONAL PROPOSITIONS.

1. The objects about which we are chiefly conversant in this world are all of a nature liable to change. What may be affirmed of them at one time, cannot often be affirmed at another; and it makes no small part of our knowledge to distinguish rightly these variations, and trace the reasons on which they depend. For it is observable that, amidst all the vicissitude of nature, some things remain constant and invariable; nor even are the changes, to which we see others liable, effected but in consequence of uniform and steady laws, which, when known, are sufficient to direct us in our judgments respecting them. Hence philosophers, in distinguishing the objects of our perception into various classes, have been very careful to note, that some properties belong essentially to the general idea, so as not to be separable from it but by destroying its very nature; while others are only accidental, and may be affirmed or denied of it in different circumstances. Thus solidity, a yellow color, and great weight, are considered as essential qualities of gold; but whether it shall exist as a

uniform conjoined mass, is not alike necessary. We see that by a certain process it may be reduced to a fine powder, and that an intense heat will bring it into a state of fusion.

2. From this diversity in the several qualities of things arises a considerable difference as to the manner of our judging concerning them. For all such properties as are inseparable from objects, when considered as belonging to any genus or species, are affirmed absolutely and without reserve of that general idea. Thus we say, Gold is very weighty; a stone is hard; animals have a power of self-motion. But in the case of mutual or accidental qualities, as they depend upon some other consideration distinct from the general idea, that also must be taken into the account, in order to form an accurate judgment. Should we affirm, for instance, of some stones, that they are very susceptible of a rolling motion; the proposition, while it remains in this general form, cannot with any advantage be introduced into our reasonings. An aptness to receive that mode of motion flows from the figure of the stone; which, as it may vary infinitely, our judgment then only becomes applicable and determinate, when the particular figure, of which volubility is a consequence, is also taken into the account. Let us, then, bring in this other consideration, and the proposition will run as follows: stones of a spherical form are easily put into a rolling motion. Here we see the condition upon which the predicate is affirmed, and therefore know in what particular cases the proposition may be applied.

3. This consideration of propositions, respecting the manner in which the predicate is affirmed of the subject, gives rise to the division of them into absolute and conditional. *Absolute* propositions are those wherein we affirm some property inseparable from the idea of the subject, and which therefore belongs to it in all possible cases: as, God is infinitely wise; virtue tends to the ultimate happiness of man. But where the predicate is not necessarily connected with the idea of the subject, unless upon some consideration distinct from that idea, there the proposition is called *conditional*. The reason is from the supposition annexed, which is of the nature of a condition, and may be expressed as such, thus: If a stone is exposed to the rays of the sun, it will contract some degree of heat; if a river runs in a very declining channel, its rapidity will constantly increase.

4. There is not any thing of greater importance in philosophy than a due attention to this division of propositions. If we are careful never to affirm things absolutely but where the ideas are inseparably conjoined, and if in our other judgments we distinctly mark the conditions which determine the predicate to belong to the subject, we shall be less liable to mistake in applying general truths to the particular concerns of human life. It is owing to the exact observance of this rule that mathematicians have been so happy in their discoveries, and that what they demonstrate of magnitude in general may be applied with ease in all obvious occurrences.

5. The truth of it is, particular propositions are then known to be true, when we can trace

their connexion with universals; and it is accordingly the great business of science to find out general truths that may be applied with safety in all obvious instances. Now the great advantage arising from determining with care the conditions upon which one idea may be affirmed or denied of another is this: that thereby particular propositions really become universal, may be introduced with certainty into our reasonings, and serve as standards to conduct and regulate our judgments. To illustrate this by a familiar instance: if we say, some water acts very forcibly; the proposition is particular: and, as the conditions on which this forcible action depends are not mentioned, it is as yet uncertain in what cases it may be applied. Let us then supply these conditions, and the proposition will run thus: Water, conveyed in sufficient quantity along a steep descent, acts very forcibly. Here we have a universal judgment, inasmuch as the predicate forcible action may be ascribed to all water under the circumstances mentioned. Nor is it less evident that the proposition in this new form is of easy application; and in fact we find that men do apply it in instances where the forcible action of water is required; as in corn-mills and many other works of art.

SECT. V.—OF SIMPLE AND COMPOUND PROPOSITIONS.

1. Hitherto we have treated of propositions, where only two ideas are compared together. These are in the general called *simple*; because, having but one subject and one predicate, they are the effect of a simple judgment that admits of no subdivision. But if several ideas offer themselves to our thoughts at once, whereby we are led to affirm the same thing of different objects, or different things of the same object, the propositions expressing these judgments are called *compound*; because they may be resolved into as many others as there are subjects or predicates in the whole complex determination of the mind. Thus, God is infinitely wise and infinitely powerful. Here there are two predicates, infinite wisdom and infinite power, both affirmed of the same subject; and accordingly the proposition may be resolved into two others, affirming these predicates severally. In like manner, in the proposition, Neither kings nor people are exempt from death; the predicate is denied of both subjects, and may therefore be separated from them in distinct propositions. Nor is it less evident that, if a complex judgment consists of several subjects and predicates, it may be resolved into as many simple propositions as are the number of different ideas compared together. Riches and honors are apt to elate the mind, and increase the number of our desires. In this judgment there are two subjects and two predicates, and it is at the same time apparent that it may be resolved into four distinct propositions. Riches are apt to elate the mind. Riches are apt to increase the number of our desires. And so of honors.

2. Logicians have divided these compound propositions into many different classes; but not with a due regard to their proper definition. Thus conditionals, causals, relatives, &c., are

mentioned as so many distinct species of this kind, though in fact they are merely simple propositions. To give an instance of a conditional: If a stone is exposed to the rays of the sun, it will contract some degree of heat. Here we have but one subject and one predicate; for the complex expression, a stone exposed to the rays of the sun, constitutes the proper subject of this proposition, and is no more than one determined idea. The same thing happens in causals. Rehoboam was unhappy because he followed evil counsel. There is here an appearance of two propositions arising from the complexity of the expression; but, when we consider the matter more attentively, it is evident that we have but a single subject and predicate. The pursuit of evil counsel brought misery upon Rehoboam. It is not enough, therefore, to render a proposition compound, that the subject and predicate are complex notions, requiring sometimes a whole sentence to express them; for in this case the comparison is still confined to two ideas, and constitutes what we call a simple judgment. But where there are several subjects or predicates, or both, as the affirmation or negation may be alike extended to them all, the proposition expressing such a judgment is truly a collection of as many simple ones as there are different ideas compared. Confining ourselves therefore to this more strict and just notion of compound propositions, they are all reducible to two kinds, viz. copulatives and disjunctives.

3. A *copulative* proposition is, where the subjects and predicates are so linked together, that they may be all severally affirmed or denied one of another. Of this nature are the examples of compound propositions given above. 'Riches and honors are apt to elate the mind, and increase the number of our desires.' 'Neither kings nor people are exempt from death. In the first of these the two predicates may be affirmed severally of each subject, whence we have four distinct propositions. The other furnishes an example of the negative kind, where the same predicate, being disjoined from both subjects, may be also denied of them in separate propositions.

4. The other species of compound propositions are those called *disjunctives*; in which, comparing several predicates with the same subject, we affirm that one of them necessarily belongs to it, but leave the particular predicate undetermined. If any one, for example, says, 'This world either exists of itself, or is the work of some all-wise and powerful cause'; it is evident that one of the two predicates must belong to the world; but, as the proposition determines not which, it is therefore of the kind we call disjunctive. Such too are the following: 'The sun either moves round the earth, or is the centre about which the earth revolves.' 'Friendship finds men equal, or makes them so.' It is the nature of all propositions of this class, supposing them to be exact in point of form, that, upon determining the particular predicate, the rest are of course to be removed; or, if all the predicates but one are removed, that one necessarily takes place. Thus, in the example given above, if we allow the world to be the work of some wise and

powerful cause, we of course deny it to be self-existent; or, if we deny it to be self-existent, we must necessarily admit that it was produced by some wise and powerful cause. Now this particular manner of linking the predicates together, so that the establishing one displaces all the rest, or the excluding all but one necessarily establishes that one, cannot otherwise be effected than by means of disjunctive particles. And hence propositions of this class take their names from these particles which make so necessary a part of them, and indeed constitute their very nature considered as a distinct species

SECT. VI.—OF THE DIVISION OF PROPOSITIONS INTO SELF-EVIDENT AND DEMONSTRABLE.

1. When any proposition is offered to the view of the mind, if the terms in which it is expressed be understood, upon comparing the ideas together, the agreement or disagreement asserted is either immediately perceived, or found to lie beyond the present reach of the understanding. In the first case, the proposition is said to be *self-evident*, and admits not of any proof, because a bare attention to the ideas themselves produces full conviction and certainty; nor is it possible to call in any thing more evident by way of confirmation. But, where the connexion or repugnance comes not so readily under the inspection of the mind, there we must have recourse to reasoning; and if by a clear series of proofs we can make out the truth proposed, so that self-evidence shall accompany every step of the procedure, we are then able to demonstrate what we assert, and the proposition itself is said to be *demonstrable*. When we affirm, for instance, that 'it is impossible for the same thing to be and not to be;' whoever understands the terms made use of perceives at first glance the truth of what is asserted, nor can he by any efforts bring himself to believe the contrary. The proposition therefore is self-evident, and such that it is impossible by reasoning to make it plainer; because there is no truth more obvious or better known, from which as a consequence it may be deduced. But if we say, this world had a beginning; the assertion is indeed equally true, but shines not forth with the same degree of evidence. We find great difficulty in conceiving how the world could have a beginning: and are not brought to a free and full consent, until by reasoning we arrive at a clear view of the absurdity involved in the contrary supposition. Hence this proposition is of the kind we call *demonstrable*, as its truth is not immediately perceived by the mind, but yet may be made to appear by means of others more obvious, whence it follows as an unavoidable consequence.

2. From what has been said, it appears, that reasoning is employed only about demonstrable propositions, and that our intuitive or self-evident perceptions are the foundation on which it rests.

3. Self-evident propositions furnish the first principles of reasoning; and it is certain, that if in our researches we employ only such principles as have the character of self-evidence, and apply them according to the rules to be afterwards explained, we shall be in no danger of error in

advancing from one discovery to another. For this we may appeal to the writings of the mathematicians, which, being conducted by the express model here mentioned, are an incontestable proof of the firmness and stability of human knowledge, when built upon so sure a foundation. For not only have the propositions of this science stood the test of ages, but are found attended with that invincible evidence, which forces the assent of all who duly consider the proofs upon which they are established. Since the mathematicians are universally allowed to have adopted the right method of arriving at unknown truths, and have been the happiest in the choice as well as in the application of their principles, it may not be amiss to explain here their method of stating self-evident propositions, and applying them to the purposes of demonstration.

4. First then, it is to be observed, that they have been very careful in ascertaining their ideas and fixing the signification of their terms. For this purpose they begin with definitions, in which the meaning of their words is so distinctly explained, that they cannot fail to excite in the mind of an attentive reader the very same ideas that are annexed to them by the writer. And indeed the clearness and irresistible evidence of mathematical knowledge is owing to nothing so much as to this care in laying the foundation. Where the relation between any two ideas is accurately and justly traced, it will not be difficult for another to comprehend that relation, if in setting himself to discover it he brings the very same ideas into comparison. But if, on the contrary, he affixes to his words ideas different from those that were in the mind of him who first advanced the demonstration; it is evident that, as the same ideas are not compared, the same relation cannot subsist, so that a proposition will be rejected as false, which, had the terms been rightly understood, must have appeared incontestably true. A square, for instance, is a figure bounded by four equal right lines, joined together at right angles. Here the nature of the angles makes no less a part of the idea than the equality of the sides; and many properties demonstrated of the square flow entirely from its being a rectangular figure. If, therefore, we suppose a man, who has formed a partial notion of a square, comprehending only the equality of its sides, without regard to the angles, reading some demonstration that implies also this latter consideration; it is plain he would reject it as not universally true, as it could not be applied where the sides were joined together at equal angles. For this last figure, answering still to his idea of a square, would be yet found without the property assigned to it in the proposition. But, if he comes afterwards to correct his notion, he will then readily own the truth and justness of the demonstration.

5. We see, therefore, that nothing contributes so much to the improvement and certainty of human knowledge as having determinate ideas, and keeping them steadily and invariably in all our discourses and reasonings. On this account mathematicians always begin by defining their terms, and distinctly unfolding the notions they are intended to express. Hence such as apply

themselves to these studies have exactly the same views of things; and, bringing always the very same ideas into comparison, readily discern the relation between them. It is likewise of importance, in every demonstration, to express the same idea invariably by the same word. From this practice mathematicians never deviate; and if it be necessary in their demonstrations, where the reader's comprehension is aided by a diagram, it is much more so in all reasonings about moral or intellectual truths, where the ideas cannot be represented by a diagram. The observation of this rule may sometimes be productive of ill-sounding periods; but, when truth is the object, sound ought to be disregarded.

6. When the mathematicians have taken this first step, and made known the ideas whose relations they intend to investigate; their next care is, to lay down some self-evident truths, which may serve as a foundation for their future reasonings. And here indeed they proceed with remarkable circumspection, admitting no principles but such as flow immediately from their definitions, and necessarily force themselves upon a mind in any degree attentive to its ideas. Thus a circle is a figure formed by a right line moving round some fixed point in the same plane. The fixed point round which the line is supposed to move, and where one of its extremities terminates, is called the centre of the circle. The other extremity, which is conceived to be carried round until it returns to the point whence it first set out, describes a curve running into itself, and termed the circumference. All right lines drawn from the centre to the circumference are called radii. From these definitions compared, geometers derive this self-evident truth, 'that the radii of the same circle are all equal to one another.'

7. We now observe, that, in all propositions, we either affirm or deny some property of the idea that constitutes the subject of our judgment, or we maintain that something may be done or effected. The first sort are called speculative propositions, as in the example mentioned above, 'The radii of the same circle are all equal one to another.' The others are called practical, for a reason quite obvious; thus, that a right line may be drawn from one point to another, is a practical proposition, inasmuch as it expresses that something may be done.

8. From this twofold consideration of propositions arises the twofold division of mathematical principles into axioms and postulates. By an axiom they understand any self-evident speculative truth; as, 'That the whole is greater than its parts:' 'That things equal to one and the same thing are equal to one another.' But a self-evident practical proposition is what they call a postulate. Such are those of Euclid: 'That a finite right line may be continued directly forwards;' 'That a circle may be described about any centre with any distance.' And here we are to observe, that, as in an axiom the agreement or disagreement between the subject and predicate must come under the immediate inspection of the mind, so in a postulate, not only the possibility of the thing asserted must be evident at first view, but also the manner in which it may

be effected. For, where this manner is not of itself apparent, the proposition comes under the notion of the demonstrable kind, and is treated as such by geometrical writers. Thus, 'to draw a right line from one point to another,' is assumed by Euclid as a postulate, because the manner of doing it is so obvious, as to require no previous teaching. But then it is not equally evident, how we are to construct an equilateral triangle. For this reason he advances it as a demonstrable proposition, lays down rules for the exact performance, and at the same time proves, that, if these rules are followed, the figure will be justly described.

9. This leads us to notice, that as self-evident truths are distinguished into different kinds, according as they are speculative or practical, so is it also with demonstrable propositions. A demonstrable speculative proposition is by mathematicians called a theorem. Such is the famous forty-seventh proposition of the first book of the Elements, known by the name of the Pythagorean theorem, from its supposed inventor Pythagoras, viz. 'That, in every right-angled triangle, the square described upon the side subtending the right angle is equal to both the squares described upon the sides containing the right angle.' On the other hand, a demonstrable practical proposition is called a problem; as where Euclid teaches us to describe a square upon a given right line.

10. Besides the four kinds of propositions already mentioned, mathematicians have also a fifth, known by the name of corollaries. These are usually subjoined to theorems or problems, and differ from them only in this, that they flow from what is there demonstrated in so obvious a manner as to discover their dependence upon the proposition whence they are deduced, almost as soon as proposed. Thus Euclid having demonstrated, 'that in every right-lined triangle all the three angles taken together are equal to two right angles,' adds, by way of corollary, 'that all the three angles of any one triangle taken together are equal to all the three angles of any other triangle taken together:' which is evident at first sight; because in all cases they are equal to two right ones, and things equal to one and the same thing are equal to one another.

11. The scholia of mathematicians are indifferently annexed to definitions, propositions, or corollaries: and answer the same purposes as annotations upon a classic author. For in them occasion is taken to explain whatever may appear intricate and obscure in a train of reasoning; to answer objections; to teach the application and uses of propositions; to lay open the original and history of the several discoveries made in the science; and, in a word, to acquaint us with all such particulars as deserve to be known, whether considered as points of curiosity or profit.

PART III.

OF REASONING.

SECT. I.—OF REASONING IN GENERAL, AND THE PARTS OF WHICH IT CONSISTS.

1. It often happens, in comparing ideas together, that their agreement or disagreement cannot

be discerned at first view, especially if they are of such a nature as not to admit of an exact application one to another. When, for instance, we compare two figures of a different make, in order to judge of their equality or inequality, it is plain that, by barely considering the figures themselves, we cannot arrive at an exact determination; because, by reason of their disagreeing forms, it is impossible to put them together, so that their several parts shall mutually coincide. Here then it becomes necessary to look out for some third idea that will admit of such an application as the present case requires; wherein if we succeed, all difficulties vanish, and the relation we are in quest of may be traced with ease. Thus right-lined figures are all reduced to squares, by means of which we can measure their areas, and determine exactly their agreement or disagreement in point of magnitude.

2. But how can any third idea serve to discover a relation between two others? The answer is, by being compared severally with these others; for such a comparison enables us to see how far the ideas with which this third is compared are connected or disjoined between themselves. In the example mentioned above of two right-lined figures, if we compare each of them with some square whose area is known, and find the one exactly equal to it, and the other less by a square inch, we immediately conclude that the area of the first figure is a square inch greater than that of the second. The manner of determining the relation between any two ideas, by the intervention of some third with which they may be compared, is that which we call *reasoning*; and is indeed the chief instrument by which we push on our discoveries, and enlarge our knowledge. The great art lies in finding out such intermediate ideas, as, when compared with the others in the question, will furnish evident and known truths; because, as will afterwards appear, it is only by means of them that we arrive at the knowledge of what is hidden and remote.

3. Hence it appears, that every act of reasoning necessarily includes three distinct judgments; two wherein the ideas whose relation we want to discover are severally compared with the middle idea, and a third wherein they are themselves connected or disjoined, according to the result of that comparison. Now, as in the second part of logic our judgments, when put into words, were called propositions, so here in the third part the expressions of our reasonings are termed syllogisms. Hence it follows, that as every act of reasoning implies three several judgments, so every syllogism must include three distinct propositions. When a reasoning is thus put into words, and appears in form of a syllogism, the intermediate idea, made use of to discover the agreement or disagreement we search for, is called the middle term; and the two ideas themselves, with which this third is compared, go by the name of the extremes.

4. But as these things are best illustrated by examples; let us, for instance, set ourselves to enquire whether men are accountable for their actions. As the relation between the ideas of men and accountableness comes not within the immediate view of the mind, our first care must

be to find out some third idea that will enable us the more easily to discover and trace it. A very small measure of reflection is sufficient to inform us, that no creature can be accountable for his actions, unless we suppose him capable of distinguishing the good from the bad; that is, unless we suppose him possessed of reason. Nor is this alone sufficient. For what would it avail him to know good from bad actions, if he had no freedom of choice, nor could avoid the one and pursue the other? Hence it becomes necessary to take in both considerations in the present case. It is at the same time equally apparent, that wherever there is this ability of distinguishing good from bad actions, and of pursuing the one and avoiding the other, there also a creature is accountable. We have then obtained a third idea, with which accountableness is inseparably connected, viz. reason and liberty; which are here to be considered as making up one complex conception. Let us now take this middle idea, and compare it with the other term in the question, viz. man, and we all know by experience that it may be affirmed of him. Having thus by means of the intermediate idea formed two several judgments, viz. that man is possessed of reason and liberty; and that reason and liberty imply accountableness; a third obviously and necessarily follows, viz. that man is accountable for his actions. Here then we have a complete act of reasoning, in which, according to what has been already observed, there are three distinct judgments: two that may be styled previous, inasmuch as they lead to the other, and arise from comparing the middle idea with the two ideas in the question; the third is a consequence of these previous acts, and flows from combining the extreme ideas. If now we put this reasoning into words, it exhibits what logicians term a syllogism: and when proposed in due form runs thus:—‘Every creature possessed of reason and liberty is accountable for his actions.—Man is a creature possessed of reason and liberty;—Therefore man is accountable for his actions.’

5. In this syllogism we may observe, that there are three several propositions expressing the three judgments implied in the act of reasoning; and so disposed as to represent distinctly what passes within the mind in tracing the more distant relations of its ideas. The first two propositions answer the two previous judgments in reasoning, and are called the premises, because they are placed before the other. The third is termed the conclusion, as being gained in consequence of what was asserted in the premises. We are also to remember, that the terms expressing the two ideas whose relations we enquire after, as here man and accountableness, are in general called the extremes; and that the intermediate idea, by means of which the relation is traced, viz. a creature possessed of reason and liberty, takes the name of the middle term. Hence it follows, that by the premises of a syllogism we are always to understand the two propositions where the middle term is respectively compared with the extremes; for these constitute the previous judgments, whence the truth we are in quest of is by reasoning deduced. The conclusion is that other

proposition, in which the extremes themselves are joined or separated agreeably to what appears upon the above comparison.

6. The conclusion is made up of the extreme terms of the syllogism : and the extreme, which serves as the predicate of the conclusion, goes by the name of the major term : the other extreme, which makes the subject in the same proposition, is called the minor term. From this distinction of the extremes arises also a distinction between the premises, where these extremes are respectively compared with the middle term. That proposition which compares the greater extreme, or the predicate of the conclusion, with the middle term, is called the major proposition : the other, wherein the same middle term is compared with the subject of the conclusion or less extreme, is called the minor proposition. All this is obvious from the syllogism already given, where the conclusion is, man is accountable for his actions. For here the predicate, accountable for his actions, being connected with the middle term in the first of the two premises, every creature possessed of reason and liberty is accountable for his actions, gives what we call the major proposition. In the second of the premises, man is a creature possessed of reason and liberty, we find the less extreme, or subject of the conclusion, viz. man, connected with the same middle term, whence it is known to be the minor proposition. When a syllogism is proposed in due form, the major proposition is always placed first, the minor next, and the conclusion last.

7. These things premised, we may define reasoning to be an act or operation of the mind, deducing some unknown proposition from other previous ones that are evident and known. These previous propositions, in a simple act of reasoning, are only two in number ; and it is always required that they be of themselves apparent to the understanding, so that we assent to and perceive the truth of them as soon as proposed. In the syllogism given above, the premises are supposed to be self-evident truths ; otherwise the conclusion could not be inferred by a single act of reasoning. If, for instance, in the major, 'every creature possessed of reason and liberty is accountable for his actions,' the connexion between the subject and predicate could not be perceived by a bare attention to the ideas themselves ; it is evident that this proposition would no less require a proof than the conclusion deduced from it. In this case a new middle term must be sought, to trace the connexion here supposed ; and this of course furnishes another syllogism, by which having established the proposition in question, we are then, and not before, at liberty to use it in any succeeding train of reasoning. And should it so happen, that in this second essay there were still some previous proposition whose truth did not appear at first sight, we must then have recourse to a third syllogism, to lay open that truth to the mind : because, so long as the premises remain uncertain, the conclusion built upon them must be so too. When, by conducting our thoughts in this manner, we at last arrive at some syllogism where the previous propositions are intuitive truths, the mind then rests in full security as perceiving that the se-

veral conclusions it has passed through, stand upon the immoveable foundations of self-evidence.

8. We see, therefore, that, to infer a conclusion by a single act of reasoning, the premises must be intuitive propositions. Where they are not, previous syllogisms are required ; in which case reasoning becomes a complicated act, taking in a variety of successive steps. This frequently happens in tracing the more remote relation of our ideas ; where, many middle terms being called in, the conclusion cannot be made out but in consequence of a series of syllogisms following one another in train. But although, in this concatenation of propositions, those that form the premises of the last syllogism are often considerably removed from self-evidence ; yet, if we trace the reasoning backwards, we shall find them the conclusions of previous syllogisms, whose premises approach nearer and nearer to intuition in proportion as we advance, and are found at last to terminate in it. And if, after having thus performed a demonstration, we take it the contrary way ; and observe how the mind, setting out with intuitive perceptions, couples them together to form a conclusion ; how, by introducing this conclusion into another syllogism, it still advances one step farther ; and so proceeds, making every new discovery subservient to its future progress ; we shall then perceive clearly, that reasoning is no more than an orderly combination of those simple acts which we have already so fully explained.

9. Thus we see that reasoning, beginning with first principles, rises gradually from one judgment to another, and connects them in such a manner, that every stage of the progression brings with it intuitive certainty. And now we may clearly understand the definition given above of this distinguishing faculty of the human mind. Reason, we have said, is the ability of deducing unknown truths from principles or propositions that are already known. This evidently appears by the foregoing account, where we see that no proposition is admitted into a syllogism, to serve as one of the previous judgments on which the conclusion rests, unless it is itself a known and established truth, whose connexion with self-evident principles has been already traced.

SECT. II.—OF THE SEVERAL KINDS OF REASONING ; AND FIRST OF THAT BY WHICH WE DETERMINE THE GENERA AND SPECIES OF THINGS.

1. All the aims of human reason may in general be reduced to these two : 1. To rank things under those universal ideas to which they truly belong ; and, 2. To ascribe to them their several attributes and properties in consequence of that distribution.

2. One great aim of human reason is to determine the genera and species of things. We have seen, in the first part of this treatise, how the mind proceeds in framing general ideas. We have also seen, in the second part, how, by means of these general ideas, we arrive at universal propositions. Now, as in these universal propositions we affirm some property of a genus or species, it is plain that we cannot apply this property to particular objects till we have first

determined whether they are comprehended under that general idea of which the property is affirmed. Thus there are certain properties belonging to all even numbers, which cannot however be applied to any particular number, until we have first discovered it to be of the species expressed by that name. Hence reasoning begins with referring things to their several divisions and classes in the scale of our ideas; and, as these divisions are all distinguished by particular names, we hereby learn to apply the terms expressing general conceptions to such particular objects as come under our immediate observation.

3. Now, to arrive at these conclusions, by which the several objects of perception are brought under general names, two things are manifestly necessary. First, that we take a view of the idea itself denoted by that general name, and carefully attend to the distinguishing marks which serve to characterise it. Secondly, that we compare this idea with the object under consideration, observing diligently wherein they agree or differ. If the idea is found to correspond with the particular object, we then without hesitation apply to it the general name; but, if no such correspondence intervenes, the conclusion must necessarily take a contrary turn. Let us, for instance, take the number eight, and consider by what steps we are led to pronounce it an even number. First, then, we call to mind the idea signified by the expression an even number, viz. that it is a number divisible into two equal parts. We then compare this idea with the number eight, and, finding them to agree, see at once the necessity of admitting the conclusion. These several judgments, therefore, transferred into language, and reduced into the form of a syllogism, appear thus:—'Every number that may be divided into two equal parts is an even number:—The number eight may be divided into two equal parts;—Therefore the number eight is an even number.'

4. Here it may be observed, that where the general idea, to which particular objects are referred, is very familiar to the mind, and frequently in view; this reference, and the application of the general name, seem to be made without any apparatus of reasoning. When we see a horse in the fields, or a dog in the street, we readily apply the name of the species; habit, and a familiar acquaintance with the general idea, suggesting it instantaneously to the mind. We are not however to imagine on this account that the understanding departs from the usual rules of just thinking. A frequent repetition of acts begets a habit; and habits are attended with a certain promptness of execution, that prevents our observing the several steps and gradations by which any course of action is accomplished. But in other instances, where we judge not by precontracted habits, as when the general idea is very complex, or less familiar to the mind, we always proceed according to the form of reasoning established above. A goldsmith, for instance, who is in doubt as to a piece of metal, whether it be of the species called gold, first examines its properties, and then comparing them with the general idea signified by that name, if he finds a

perfect correspondence, no longer hesitates under what class of metals to rank it.

5. Nor let it be imagined that our researches here, because in appearance bounded to the imposing of general names upon particular objects, are therefore trivial and of little consequence. Some of the most considerable debates among mankind, and such too as nearly regard their lives, interest, and happiness, turn wholly upon this article. Is it not the chief employment of our several courts of judicature to determine, in particular instances, what is law, justice, and equity? Of what importance is it in many cases to decide aright, whether an action shall be termed murder or manslaughter! We see then that no less than the lives and fortunes of men often depend upon these decisions. The reason is plain. Actions, when once referred to a general idea, draw after them all that may be affirmed of that idea; insomuch that the determining the species of actions is all one with determining what proportion of praise or dispraise, commendation or blame, &c., ought to follow them. For, as it is allowed that murder deserves death, by bringing any particular action under the head of murder, we of course decide the punishment due to it.

6. But the great importance of this branch of reasoning, and the necessity of care and circumspection in referring particular objects to general ideas, is still farther evident from the practice of the mathematicians. Every one, who has read Euclid, knows that he frequently requires us to draw lines through certain points, and according to such and such directions. The figures thence resulting are often squares, parallelograms, or rectangles. Yet Euclid never supposes this from their bare appearance, but always demonstrates it upon the strictest principles of geometry. Nor is the method he takes in any thing different from that described above. Thus, for instance, having defined a square to be a figure bounded by four equal sides joined together at right angles; when such a figure arises in any construction previous to the demonstration of a proposition, yet he never calls it by that name until he has shown that its sides are equal, and all its angles right ones. Now this is apparently the same form of reasoning we have before exhibited in proving eight to be an even number.

7. Having thus explained the rules by which we are to conduct ourselves in ranking particular objects under general ideas, and shown their conformity to the practice and manner of the mathematicians, it remains only to observe, that the true way of rendering this part of knowledge both easy and certain, is, by habituating ourselves to clear and determinate ideas, and keeping them steadily annexed to their respective names. For as all our aim is to apply general words aright, if these words stand for invariable ideas that are perfectly known to the mind, and can be readily distinguished upon occasion, there will be little danger of mistake or error in our reasonings. Let us suppose that, by examining any object, and carrying our attention successively from one part to another, we have acquainted ourselves with the several particulars observable in it. If among these we find such as constitute some

general idea, framed and settled before-hand by the understanding, and distinguished by a particular name, the resemblance thus known and perceived necessarily determines the species of the object, and thereby gives it a right to the name by which that species is called. Thus four equal sides, joined together at right angles, make up the notion of a square. As this is a fixed and invariable idea, without which the general name cannot be applied, we never call any particular figure a square until it appears to have these several conditions; and, contrarily, wherever a figure is found with these conditions, it necessarily takes the name of a square. The same will be found to hold in all our other reasonings of this kind, where nothing can create any difficulty but the want of settled ideas. If, for instance, we have not determined within ourselves the precise notion denoted by the word manslaughter, it will be impossible for us to decide whether any particular action ought to bear that name: because, however nicely we examine the action itself, yet, being strangers to the general idea with which it is to be compared, we are utterly unable to judge of their agreement or disagreement. But if we take care to remove this obstacle, and distinctly trace the two ideas under consideration, all difficulties vanish, and the resolution becomes both easy and certain.

8. Thus we see of what importance it is towards the improvement and certainty of human knowledge, that we accustom ourselves to clear and determinate ideas, and a steady application of words.

SECT. III.—OF REASONING AS IT REGARDS THE POWERS AND PROPERTIES OF THINGS, AND THE RELATIONS OF OUR GENERAL IDEAS.

1. We now come to the second great end which men have in view in their reasonings: namely, the discovering and ascribing to things their several attributes or properties. And here it will be necessary to distinguish between reasoning as it regards the sciences, and as it concerns common life. In the sciences our reason is employed chiefly about universal truths, it being by them alone that the bounds of human knowledge are enlarged. Hence the division of things into various classes, called otherwise genera and species. For these universal ideas being set up as the representatives of many particular things, whatever is affirmed of them may be also affirmed of all the individuals to which they belong. Murder, for instance, is a general idea, representing a certain species of human actions. Reason tells us that the punishment due to it is death. Hence every particular action, coming under the notion of murder, has the punishment of death allotted to it. Here then we apply the general truth to some obvious instance; and this is what properly constitutes the reasoning of common life. For men, in their ordinary transactions and intercourse one with another, have, for the most part, to do only with particular objects. Our friends and relations, their characters and behaviour, the constitution of the several bodies that surround us, and the uses to which they may be applied, are what chiefly engage our attention. In all these we

reason about particular things; and the whole result of our reasoning is, the applying the general truths of the sciences in the ordinary transactions of human life. When we see a viper, we avoid it. Wherever we have occasion for the forcible action of water, to move a body that makes considerable resistance, we take care to convey it in such a manner that it shall fall upon the object with impetuosity. Now all this happens in consequence of our familiar and ready application of these two general truths. 'The bite of a viper is mortal.' 'Water, falling upon a body with impetuosity, acts very forcibly towards setting it in motion.' In like manner, if we set ourselves to consider any particular character, in order to determine the share of praise or dispraise that belongs to it, our great concern is to ascertain exactly the proportion of virtue and vice. The reason is obvious. A just determination, in all cases of this kind, depends entirely upon an application of these general maxims of morality; Virtuous actions deserve praise; vicious actions deserve blame.

2. Hence it appears that reasoning, as it regards common life, is no more than the ascribing the general properties of things to those several objects with which we are more immediately concerned, according as they are found to be of that particular division or class to which the properties belong. 'The steps then by which we proceed are manifestly these. First, we refer the object under consideration to some general idea or class of things. We then recollect the several attributes of that general idea. And, lastly, ascribe all those attributes to the present object. Thus, in considering the character of Sempronius, if we find it to be of the kind called virtuous, when we, at the same time, reflect that a virtuous character is deserving of esteem, it naturally and obviously follows that Sempronius is so too. These thoughts, put into a syllogism, in order to exhibit the form of reasoning here required, run thus:—'Every virtuous man is worthy of esteem.—Sempronius is a virtuous man;—Therefore Sempronius is worthy of esteem.'

3. By this syllogism it appears, that, before we affirm any thing of a particular object, that object must be referred to some general idea. Sempronius is pronounced worthy of esteem only in consequence of his being a virtuous man, or coming under that general notion. Hence we see the necessary connexion of the various parts of reasoning, and the dependence they have one upon another. The determining the genera and species of things is one exercise of human reason; and here we find that this exercise is the first in order, and previous to the other, which consists in ascribing to them their properties, and relations. But when we have taken this previous step, and brought particular objects under general names; as the properties we ascribe to them are no other than those of the general idea, it is plain that, in order to a successful progress in this part of knowledge, we must thoroughly acquaint ourselves with the several relations and attributes of these our general ideas. When this is done, the other part will be easy, and requires scarcely any labor

or thought, as being no more than an application of the general form of reasoning represented in the foregoing syllogism. Now, as we have already sufficiently shown how we are to proceed in determining the genera and species of things, which, as we have said, is the previous step to this second branch of human knowledge, all that is farther wanting towards a due explanation of it is, to offer some considerations as to the manner of investigating the general relations of our ideas. This is the highest exercise of the powers of the understanding, and that by means of which we arrive at the discovery of universal truths; so that our deductions in this way constitute that particular species of reasoning which regards principally the sciences.

4. But, that we may conduct our thoughts with some order and method, we shall begin with observing, that the relations of our general ideas are of two kinds: either such as immediately discover themselves, upon comparing the ideas one with another; or such as, being more remote and distant, require art and contrivance to bring them into view. The relations of the first kind furnish us with intuitive and self-evident truths. those of the second are traced by reasoning, and due application of intermediate ideas. It is of this last kind that we are to speak here, having discussed the other in the second part. As, therefore, in tracing the more distant relations of things, we must always have recourse to intervening ideas, and are more or less successful in our researches according to our acquaintance with these ideas, and ability of applying them, it is evident that, to make a good reasoner, two things are principally required. 1st, An extensive knowledge of those intermediate ideas, by means of which things may be compared one with another. 2dly, The skill and talent of applying them happily in all particular instances that come under consideration.

5. In order to our successful progress in reasoning, we must have an extensive knowledge of those intermediate ideas, by means of which things may be compared one with another. For as it is not every idea that will answer the purpose of our enquiries, but such only as are peculiarly related to the objects about which we reason, so as, by a comparison with them, to furnish evident and known truths; nothing is more apparent than that the greater variety of conceptions we can call into view, the more likely we are to find some among them that will help us to the truths here required. And, indeed, it holds in experience, that in proportion as we enlarge our views of things, and grow acquainted with a multitude of different objects, the reasoning faculty gathers strength: for, by extending our sphere of knowledge, the mind acquires a certain force and penetration, as being accustomed to examine the several appearances of its ideas, and observe what light they cast one upon another.

6. This is the reason why, in order to excel remarkably in any one branch of learning, it is necessary to have at least a general acquaintance with the whole circle of arts and sciences. All the various divisions of human knowledge are very

nearly related, and, in innumerable instances, serve to illustrate each other. And although it is not to be denied that, by a resolute application to one branch of study, a man may make considerable progress, and acquire some degree of eminence in it; yet his views will be always narrow and contracted, and he will want that masterly discernment which not only enables us to pursue our discoveries with ease, but also, in laying them open to others, to spread a certain brightness around them. But, when our reasoning regards a particular science, it is further necessary that we more nearly acquaint ourselves with whatever relates to that science. A general knowledge is a good preparation, and enables us to proceed with ease and expedition in whatever branch of learning we apply to. But then, in the minute and intricate questions of any science, we are by no means qualified to reason with advantage until we have perfectly mastered the science to which they belong.

7. We come now to the second thing required, in order to a successful progress in reasoning; namely, the skill and talent of applying intermediate ideas happily in all particular instances that come under consideration. And here rules and precepts are of little service. Use and experience are the best instructors. For, whatever logicians may boast of being able to form perfect reasoners by book and rule, we find by experience that the study of their precepts does not always add any great degree of strength to the understanding. In short, it is the habit alone of reasoning that makes a reasoner. And, therefore, the true way to acquire this talent is, by being much conversant in those sciences where the art of reasoning is allowed to reign in the greatest perfection. Hence it was that the ancients, who so well understood the manner of forming the mind, always began with mathematics as the foundation of their philosophical studies. Here the understanding is by degrees habituated to truth, contracts insensibly a certain fondness for it, and learns never to yield its assent to any proposition where the evidence is not sufficient to produce full conviction. For this reason Plato has called mathematical demonstrations the cathartics or purgatives of the soul, as being the proper means to cleanse it from error, and to promote that natural exercise of its faculties in which just thinking consists.

8. If, therefore, we would form our minds to a habit of reasoning closely and in a train, we cannot take any more certain method than exercising ourselves in mathematical demonstrations, so as to contract a kind of familiarity with them. Not that we look upon it as necessary that all men should be deep mathematicians; but that having acquired the manner of reasoning, which that study necessarily brings the mind to, they may be able to transfer it to other parts of knowledge, as they shall have occasion.

9. But though the study of mathematics be of all others the most useful to form the mind, and give it an early relish for truth, yet ought not other parts of philosophy to be neglected. For there also we meet with many opportunities of exercising the powers of the understanding; and the variety of subjects naturally leads us to ob-

serve all those different turns of thinking that are peculiarly adapted to the several ideas we examine, and the truth we search after. A mind thus trained acquires a certain mastery over its own thoughts, insomuch that it can range and model them at pleasure, and call such into view as best suit its present designs. Now in this the whole art of reasoning consists; from among a great variety of different ideas to single out those that are most proper for the business in hand, and to lay them together in such order, that from plain and easy beginnings, by gentle degrees, and a continued train of evident truths, we may be insensibly led on to such discoveries as at our first setting out appeared beyond the reach of the human understanding. For this purpose, besides the study of mathematics before recommended, we ought to apply ourselves diligently to the reading of such authors as have distinguished themselves for strength of reasoning, and a just and accurate manner of thinking. For it is observable, that a mind exercised and habituated to truth seldom rests satisfied in a bare contemplation of the arguments offered by others; but will be frequently trying its own strength, and pursuing its discoveries upon the plan it is most accustomed to. Thus we insensibly contract a habit of tracing truth from one stage to another, and of investigating those general relations and properties which we afterwards ascribe to particular things, according as we find them comprehended under the abstract ideas to which the properties belong.

SECT. IV.—OF THE FORMS OF SYLLOGISMS.

1. Having thus given a general notion of syllogisms, and their parts, we shall now enter more particularly into the subject, examine their various forms, and lay open the rules of argumentation proper to each. In the syllogisms above mentioned the middle term is the subject of the major proposition, and the predicate of the minor. This disposition, though the most natural and obvious, is not however necessary; as it often happens that the middle term is the subject in both the premises, or the predicate in both; and sometimes, directly contrary to its disposition in the preceding sections, the predicate in the major, and the subject in the minor. Hence the distinction of syllogisms into various kinds, called figures by logicians. For figure, according to their use of the word, is nothing but the order and disposition of the middle term in any syllogism. And, as this disposition is fourfold, so the figures of syllogisms thence arising are four in number. When the middle term is the subject of the major proposition, and the predicate of the minor, we have what is called the first figure: as, 'No work of God is bad:—The natural passions and appetites of men are the work of God:—Therefore none of them is bad.' If, on the other hand, it is the predicate of both the premises, the syllogism is said to be the second figure: as, 'Whatever is bad is not the work of God:—All the natural passions and appetites of men are the work of God:—Therefore the natural passions and appetites of men are not bad.' Again, in the third figure, the middle term is the subject of the two premises:

as, 'All Africans are black:—All Africans are men:—Therefore some men are black.' And lastly, by making it the predicate of the major and subject of the minor, we obtain syllogisms in the fourth figure: as, 'The only being who ought to be worshipped is the Creator and Governor of the world:—The Creator and Governor of the world is God:—Therefore God is the only being who ought to be worshipped.'

2. But, besides this fourfold distinction of syllogisms, there is a further subdivision of them in every figure, arising from the quantity and quality, as they are called, of the propositions. By quantity we mean the consideration of propositions, as universal or particular; by quality, as affirmative or negative.

Now as, in all the several dispositions of the middle term, the propositions of which a syllogism consists may be either universal or particular, affirmative or negative, the due determination of these, and so putting them together as the laws of argumentation require, constitute what logicians call the moods of syllogisms. Of these moods there is a determinate number to every figure, including all the possible ways in which propositions differing in quantity or quality can be combined, according to any disposition of the middle term, in order to arrive at a just conclusion.

The first figure has only four legitimate moods. The major proposition in this figure must be universal, and the minor affirmative; and it has this property, that it yields conclusions of all kinds, affirmative and negative, universal and particular.

The second figure has also four legitimate moods. Its major proposition must be universal, and one of the premises must be negative. It yields conclusions both universal and particular, but all negative.

The third figure has six legitimate moods. Its minor must always be affirmative; and it yields conclusions both affirmative and negative, but all particular. These are all the figures which were admitted by the inventor of syllogisms; and of which, so far as we know, the number of legitimate moods has been ascertained, and severally demonstrated. In every figure it will be found upon trial that there are sixty-four different moods of syllogism; and he who thinks it worth while to construct so many in the fourth figure, always remembering that the middle term in each must be the predicate of the major and the subject of the minor proposition, will easily discern what number of these moods are legitimate, and give true conclusions.

Besides the rules that are proper to each figure, Aristotle has given some that are common to all, by which the legitimacy of syllogisms may be tried. These may be reduced to five:

1. There must be only three terms in a syllogism: as each term occurs in two of the propositions, it must be precisely the same in both; if it be not, the syllogism is said to have four terms, which makes a vicious syllogism.
2. The middle term must be taken universally in one of the premises.
3. Both premises must not be particular propositions, nor both negative.
4. The conclusion must be particular, if either

of the premises be particular; and negative, if either of the premises be negative. 5. No term can be taken universally in the conclusion, if it be not taken universally in the premises.

For understanding the second and fifth of these rules, it is necessary to observe, that a term is said to be taken universally, not only when it is the subject of a universal proposition, but also when it is the predicate of a negative proposition. On the other hand, a term is said to be taken particularly, when it is either the subject of a particular, or the predicate of an affirmative proposition.

3. The division of syllogisms, according to mood and figure, respects those especially which are known by the name of plain simple syllogisms; that is, which are bound to three propositions, all simple, and where the extremes and middle term are connected, according to the above rules. But as the mind is not tied down to any one precise form of reasoning, but sometimes makes use of more, sometimes of fewer premises, and often takes in compound and conditional propositions, it may not be amiss to take notice of the different forms derived from this source, and explain the rules by which the mind conducts itself in the use of them.

4. When in any syllogism the major is a conditional proposition, the syllogism itself is termed conditional. Thus: 'If there is a God, he ought to be worshipped:—But there is a God:—Therefore he ought to be worshipped.' In this example the major, or first proposition, is conditional, and therefore the syllogism itself is also of the same kind. And here we must observe, that all conditional propositions consist of two distinct parts: one expressing the condition upon which the predicate agrees or disagrees with the subject, as in this now before us, if there is a God; the other joining or disjoining the said predicate and subject, as here, he ought to be worshipped. The first of these parts, or that which implies the condition, is called the antecedent; the second, where we join or disjoin the predicate and subject, has the name of the consequent.

5. In all propositions of this kind, supposing them to be exact in point of form, the relation between the antecedent and consequent must ever be true and real; that is, the antecedent must always contain some certain and genuine condition, which necessarily implies the consequent; for otherwise the position itself will be false, and therefore ought not to be admitted into our reasonings. Hence it follows, that when any conditional proposition is assumed, if we admit the antecedent of that proposition, we must at the same time necessarily admit the consequent; but, if we reject the consequent, we are in like manner bound to reject the antecedent. For as the antecedent always expresses some condition which necessarily implies the truth of the consequent; by admitting the antecedent, we allow of that condition, and therefore ought also to admit the consequent. In like manner, if it appears that the consequent ought to be rejected, the antecedent evidently must be so too; because, as has just been demonstrated, the admitting of

the antecedent would necessarily imply the admission also of the consequent.

6. There are two ways of arguing in hypothetical syllogisms, which lead to a certain and unavoidable conclusion. For as the major is always a conditional proposition, consisting of an antecedent and a consequent; if the minor admits the antecedent, it is plain that the conclusion must admit the consequent. This is called arguing from the admission of the antecedent to the admission of the consequent, and constitutes that mood or species of hypothetical syllogisms which is distinguished in the schools by the name of the *modus ponens*, as by it the whole conditional proposition, both antecedent and consequent, is established. Thus: If God is infinitely wise, and acts with perfect freedom, he does nothing but what is best:—But God is infinitely wise, and acts with perfect freedom:—Therefore he does nothing but what is best.' Here we see the antecedent or first part of the conditional proposition is established in the minor, and the consequent or second part in the conclusion; whence the syllogism itself is an example of the *modus ponens*. But if now we on the contrary suppose that the minor rejects the consequent, then it is apparent that the conclusion must also reject the antecedent. In this case we are said to argue from the removal of the consequent to the removal of the antecedent, and the particular mood or species of syllogism thence arising is called by logicians the *modus tollens*; because in it both antecedent and consequent are rejected or taken away, as appears by the following example. 'If God were not a being of infinite goodness, neither would he consult the happiness of his creatures:—But God does consult the happiness of his creatures:—Therefore he is a being of infinite goodness.'

7. These two species take in the whole class of conditional syllogisms, and include all the possible ways of arguing that lead to a legitimate conclusion; because we cannot here proceed by a contrary process of reasoning, that is, from the removal of the antecedent to the removal of the consequent, or from the establishing of the consequent to the establishing of the antecedent. For although the antecedent always expresses some real condition, which, once admitted, necessarily implies the consequent, yet it does not follow that there is therefore no other condition; and if so, then, after removing the antecedent, the consequent may still hold, because of some other determination that infers it. When we say, If a stone is exposed some time to the rays of the sun, it will contract a certain degree of heat; the proposition is certainly true; and, admitting the antecedent, we must also admit the consequent. But, as there are other ways by which a stone may gather heat, it will not follow from the ceasing of the before-mentioned condition, that therefore the consequent cannot take place. We cannot argue: but the stone has not been exposed to the rays of the sun; therefore neither has it any degree of heat: for there are many other ways by which heat might be communicated to it. And, if we cannot argue from the removal of the antecedent to the removal of

the consequent, neither can we from the admission of the consequent to the admission of the antecedent : because, as the consequent may flow from a great variety of different suppositions, the allowing of it does not determine the precise supposition, but only that some one of them must take place. Thus, in the foregoing propositions,

If a stone is exposed some time to the rays of the sun, it will contract a certain degree of heat ; admitting the consequent, viz. that it has contracted a certain degree of heat, we are not therefore bound to admit the antecedent, that it has been some time exposed to the rays of the sun ; because there are many other causes whence that heat may have proceeded. These two ways of arguing, therefore, hold not in conditional syllogisms.

8. As, from the major being a conditional proposition, we obtain the species of conditional syllogisms ; so, where it is a disjunctive proposition, the syllogism to which it belongs is also called disjunctive, as in the following example :— 'The world is either self-existent, or the work of some finite, or of some infinite being :—But it is not self-existent, nor the work of a finite being :—Therefore it is the work of an infinite Being.'

Now, a disjunctive proposition is that, in which, of several predicates, we affirm one necessarily to belong to the subject, to the exclusion of all the rest, but leave that particular one undetermined. Hence it follows that, as soon as we determine the particular predicate, all the rest are of course to be rejected ; or if we reject all the predicates but one, that one necessarily takes place. When, therefore, in a disjunctive syllogism, the several predicates are enumerated in the major ; if the minor establishes any one of these predicates, the conclusion ought to remove all the rest ; or if in the minor all the predicates but one are removed, the conclusion must necessarily establish that one. Thus, in the disjunctive syllogism given above, the major affirms one of the three predicates to belong to the earth, viz. self-existence, or that it is the work of a finite, or that it is the work of an infinite Being. Two of these predicates are removed in the minor, viz. self-existence, and the work of a finite being. Hence the conclusion necessarily ascribes to it the third predicate, and affirms that it is the work of an infinite Being. If we give the syllogism another turn, so that the minor may establish one of the predicates, by affirming the earth to be the production of an infinite Being : then the conclusion must remove the other two, asserting it to be neither self-existent, nor the work of a finite being. These are the forms of reasoning in these species of syllogisms, the justness of which appears at first sight : and that there can be no other is evident from the very nature of a disjunctive proposition.

9. In the several kinds of syllogisms hitherto mentioned, we may observe, that the parts are complete ; that is, the three propositions of which they consist are represented in form. But it often happens, that some one of the premises is not only an evident truth, but also familiar and in the minds of all men ; in which case it is usually omitted, whereby we have an imperfect syllogism that seems to be made up of only two propositions.

Should, we, for instance, argue in this manner :— 'Every man is mortal :—therefore every king is mortal :—the syllogism appears to be imperfect, as consisting but of two propositions. Yet it is really complete ; only the minor (every king is a man) is omitted ; and left to the reader to supply, as being a proposition so familiar and evident that it cannot escape him.

10. These seemingly imperfect syllogisms are called *enthymemes* ; and occur very frequently in reasoning, especially where it makes a part of common conversation. Nay, there is a particular elegance in them, because, not displaying the argument in all its parts, they leave somewhat to the exercise and invention of the mind. We are thus put upon exerting ourselves, and seem to share in the discovery of what is proposed to us. Now this is the great secret of fine writing, ~~to~~ to frame and put together our thoughts as to give full play to the reader's imagination, and draw him insensibly into our views and course of reasoning. This gives a pleasure not unlike to that which the author himself feels in composing. It besides shortens discourse, and adds a certain force and liveliness to our arguments, when the words in which they are conveyed favor the natural quickness of the mind in its operations, and a single expression is left to exhibit a whole train of thoughts.

11. But there is another species of reasoning with two propositions, which seems to be complete in itself, and where we admit the conclusion without supposing any tacit or suppressed judgment in the mind, from which it follows syllogistically. This happens between propositions, where the connexion is such, that the admission of the one necessarily, and at the first sight, implies the admission also of the other. For if the proposition on which the other depends is self-evident, we content ourselves with barely affirming it, and infer that other by a direct conclusion. Thus, by admitting a universal proposition, we are forced also to admit of all the particular propositions comprehended under it, this being the very condition that constitutes a proposition universal. If then that universal proposition be self-evident, the particular ones follow of course, without any farther train of reasoning. Whoever allows, for instance, 'that things equal to one and the same thing are equal to one another,' must at the same time allow, 'that two triangles, each equal to a square whose side is three inches, are also equal between themselves.' This argument, therefore,—'Things equal to one and the same thing, are equal to one another :—Therefore these two triangles, each equal to the square of a line of three inches, are equal between themselves :—is complete in its kind, and contains all that is necessary towards a just and legitimate conclusion. For the first or universal proposition is self-evident, and therefore requires no farther proof. And as the truth of the particular is inseparably connected with that of the universal, it follows from it by an obvious and unavoidable consequence.

12. Now, in all cases of this kind, where propositions are deduced one from another, on account of a known and evident connexion, we are said to reason by immediate consequence. Such

a coherence of propositions, manifest at first sight, and forcing itself upon the mind, frequently occurs in reasoning. Logicians have explained at some length the several suppositions upon which it takes place, and allow of all immediate consequences that follow in conformity to them. It is however observable, that these arguments, though seemingly complete, because the conclusion follows necessarily from the single proposition that goes before, may yet be considered as real enthymemes, whose major, which is a conditional proposition, is wanting. The syllogism just mentioned, when represented according to this view, will run as follows:—‘If things equal to one and the same thing, are equal to one another; these two triangles, each equal to a square whose side is three inches, are also equal between themselves. But things equal to one and the same thing are equal to one another:—therefore also these triangles, &c., are equal between themselves.’ This observation will be found to hold in all immediate consequences whatsoever, so that they are in fact no more than enthymemes of hypothetical syllogisms. But then it is particular to them, that the ground on which the conclusion rests, namely its coherence with the minor, is of itself apparent, and seems immediately to flow from the rules and reasons of logic.

13. The next species of reasoning we shall notice here is what is commonly known by the name of *sorites*. This is a way of arguing, in which a great number of propositions are so linked together, that the predicate of one becomes continually the subject of the next following, until at last a conclusion is formed, by bringing together the subject of the first proposition, and the predicate of the last. Of this kind is the following argument:—‘God is omnipotent:—an omnipotent being can do every thing possible: he that can do every thing possible, can do whatever involves not a contradiction:—therefore God can do whatever involves not a contradiction.’ This particular combination of propositions may be continued to any length we please, without in the least weakening the ground upon which the conclusion rests. The reason is, because the *sorites* itself may be resolved into as many simple syllogisms as there are middle terms in it; where this is found universally to hold, that when such a resolution is made, and the syllogisms are placed in train, the conclusion of the last in the series is also the conclusion of the *sorites*. This kind of argument, therefore, as it serves to unite several syllogisms into one, must stand upon the same foundation with the syllogisms of which it consists, and is indeed, properly speaking, no other than a compendious way of reasoning syllogistically.

14. What is here said of plain simple propositions, may be as well applied to those that are conditional; that is, any number of them may be so joined together in a series, that the consequent of one shall become continually the antecedent of the next following; in which case, by establishing the antecedent of the first proposition, we establish the consequent of the last, or, by removing the last consequent, remove also the first antecedent. This way of reasoning

is exemplified in the following argument:—‘If we love any person, all emotions of hatred towards him cease:—If all emotions of hatred towards a person cease, we cannot rejoice in his misfortunes:—If we rejoice not in his misfortunes, we certainly wish him no injury:—Therefore, if we love a person, we wish him no injury.’ It is evident that this *sorites*, as well as the last, may be resolved into a series of distinct syllogisms, with this only difference, that here the syllogisms are all conditional.

15. The last species of syllogism we shall take notice of in this section is that commonly distinguished by the name of a *dilemma*. A dilemma is an argument by which we endeavour to prove the absurdity or falsehood of some assertion. In order to this, we assume a conditional proposition, the antecedent of which is the assertion to be disproved, and the consequent a disjunctive proposition, enumerating all the possible suppositions upon which that assertion can take place. If then it appears, that all these several suppositions are to be rejected, it is plain, that the antecedent or assertion itself must be so too. When, therefore, such a proposition as that before mentioned is made the major of any syllogism; if the minor rejects all the suppositions contained in the consequent, it necessarily follows, that the conclusion ought to reject the antecedent, which is the very assertion to be disproved. This particular way of arguing is that which logicians call a dilemma; and, from the account here given of it, it appears that we may in the general define it to be a hypothetical syllogism, where the consequent of the major is a disjunctive proposition, which is wholly taken away or removed in the minor. Of this kind is the following:—‘If God did not create the world perfect in its kind, it must either proceed from want of inclination, or from want of power:—But it could not proceed either from want of inclination or want of power:—Therefore, he created the world perfect in its kind.’ Or, which is the same thing: ‘It is absurd to say that he did not create the world perfect in its kind.’

16. The nature, then, of a dilemma is universally this. The major is a conditional proposition, whose consequent contains all the several suppositions upon which the antecedent can take place. As, therefore, these suppositions are wholly removed in the minor, it is evident that the antecedent must be so too; inasmuch that we here always argue from the removal of the consequent to the removal of the antecedent. That is, a dilemma is an argument in the *modus tollens* of hypothetical syllogisms, as logicians speak. Hence it is plain that, if the antecedent of the major is an affirmative proposition, the conclusion of the dilemma will be negative; but, if it is a negative proposition, the conclusion will be affirmative.

SECT. V.—OF INDUCTION.

1. All reasoning proceeds ultimately from first truths, either self-evident or taken for granted; and the first truths of syllogistic reasonings are general propositions. But except in the mathematics, and such other sciences as, being con-

versant about mere ideas, have no immediate relation to things without the mind, we cannot assume as truths propositions which are general. The mathematician, indeed, may be considered as taking his ideas from the beginning in their general form. Every proposition composed of such ideas is therefore general; and those which are theoretic are reducible to two parts or terms, a predicate and a subject, with a copula generally affirmative. If the agreement or the relation between the two terms be not immediate and self-evident, he has recourse to an axiom, which is a proposition still more general, and which supplies him with a third or middle term. This he compares first with the predicate, and then with the subject, or vice versâ. These two comparisons, when drawn out in form, make two propositions, which are called the premises; and, if they be immediate and self-evident, the conclusion, consisting of the terms of the question proposed, is said to be demonstrated. This method of reasoning is conducted exactly in the syllogistic form explained in the preceding section.

2. But, in sciences which treat of things external to the mind, we cannot assume as first principles the most general propositions, and from them infer others less and less general till we descend to particulars. The reason is obvious. Every thing in the universe, whether of mind or body, presents itself to our observation in its individual state; so that perception and judgment, employed in the investigation of truth, whether physical, metaphysical, moral, or historical, have in the first place to encounter with particulars. 'With these reason begins or should begin, its operations. It observes, examines, compares, and judges of them by some of those native evidences and original lights which, as they are the first and indispensable inlets of knowledge to the mind, have been called the primary principles of truth.'

3. 'By such acts of observation and judgment,' says that accurate logician, Mr. Tatham, 'diligently practised, and frequently repeated, on many individuals of the same class or of a similar nature, noting their agreements, marking their differences, however minute, and rejecting all instances which, however similar in appearance, are not in effect the same, reason, with much labor and attention, extracts some general laws respecting the properties and relations of real things.' This is no hasty, premature, notional abstraction of the mind, by which ideas are formed that have no archetypes in nature: it is a rational experimental process, instituted and executed upon the constitution of beings, which in part compose the universe. By this process reason advances from particulars to generals, from less general to more general, till by a series of slow progression, and by regular degrees, it arrives at the most general notions. And by affirming or denying a genus of a species, or an accident of a substance or class of substances, through all the stages of the gradation, we form conclusions, which, if logically drawn, are axioms, or general propositions ranged one above another, till they terminate in those that are universal.

4. 'Thus, for instance, the evidence of the ex-

ternal senses is obviously the primary principle from which all physical knowledge is derived. But, whereas nature begins with causes, which, after a variety of changes, produce effects, the senses open upon the effects, and from them, through the slow and painful road of experiment and observation, ascend to causes. By experiment and observations skilfully chosen, carefully conducted, and judiciously applied, the philosopher advances from one stage of enquiry to another, in the rational investigation of the general causes of physical truth. From different experiments and observations made on the same individual subject, and from the same experiments and observations made on different subjects of the same kind, by comparing and judging, he discovers some qualities, causes, or phenomena, which, after carefully distinguishing and rejecting all contradictory instances that occur, he finds common to many. Thus, from many collateral comparisons and judgments formed upon particulars, he ascends to generals; and, by a repetition of the same industrious process and laborious investigation, he advances from general to more general, till at last he is enabled to form a few of the most general, with their attributes and operations, into axioms or secondary principles, which are the well-founded laws enacted and enforced by the God of nature. This is that just and philosophic method of reasoning which sound logic prescribes, in this as well as in other parts of learning; by which, through the slow but certain road of experiment and observation, the mind ascends from appearances to qualities, from effects to causes, and, from experiments upon many particular subjects, forms general propositions concerning the powers and properties of physical body.

5. 'Axioms so investigated and established are applicable to all parts of learning, and are the indispensable, and, indeed, the wonderful expedients, by which, in every branch of knowledge, reason pushes on its enquiries to the particular pursuit of truth: and the method of reasoning by which they are formed is that of true and legitimate *induction*; which is, therefore, by lord Bacon, the best and soundest of logicians, called 'the key of interpretation.'

6. 'Instead of taking his axioms promiscuously or arbitrarily out of the great families of the categories, and erecting them by his own sophistical invention into the principles upon which his disputation was to be employed, had the analytical genius of Aristotle presented us with the laws of the true inductive logic, by which axioms are philosophically formed, and had he, with his usual sagacity, given us an example of it in a single branch of science; he would have brought to the temple of truth an offering more valuable than he has done by the aggregate of all his logical and philosophical productions.

7. 'In all sciences, except the mathematics, it is only after the inductive process has been industriously pursued and successfully performed, that definition may be logically and usefully introduced, by beginning with the genus, passing through all the graduate and subordinate stages, and marking the specific difference as it

descends, till it arrive at the individual, which is the subject of the question. And, by adding an affirmation or negation of the attribute of the genus on the species or individual, or of a general accident on the particular substance so defined, making the definition a proposition, the truth of the question will be logically solved without any farther process. So that instead of being the first, as employed by the logic in common use, definition may be the last act of reason in the search of truth in general.

8. 'These axioms, or general propositions, thus inductively established, become another species of principles, which may be properly called secondary, and which lay the foundation of the syllogistic method of reasoning. When these are formed, but not before, we may safely admit the maxim with which logicians set out in the exercise of their art, as the great hinge on which their reasoning and disputation turn: 'From truths that are already known, to derive others which are not known.' Or, to state it more comprehensively, so as to apply to probable as well as to scientific reasoning—'From truths which are better known, to derive others which are less known.' Philosophically speaking, syllogistic reasoning is, under general propositions to reduce others which are less general, or which are particular; for the inferior ones are known to be true, only as we trace their connexion with the superior. Logically speaking, it is, To predicate a genus of a species or individual comprehended under it, or an accident of the substance in which it is inherent.

9. 'Thus *induction* and *syllogism* are the two methods of direct reasoning corresponding to the two kinds of principles, primary and secondary, on which they are founded, and by which they are respectively conducted. In both methods, indeed, reason proceeds by judging and comparing, but the process is different throughout; and, though it may have the sanction of Aristotle, an inductive syllogism is a solecism.

10. 'Till general truths are ascertained by induction, the third or middle terms by which syllogisms are made, are no where safely to be found. So that another position of the Stagyrte, that 'syllogism is naturally prior in order to induction,' is equally unfounded; for induction does not only naturally but necessarily precede syllogism; and, except in mathematics, is in every respect indispensable to its existence; since, till generals are established, there can be neither definition, proposition, nor axiom, and of course no syllogism. And, as induction is the first, so is it the more essential and fundamental instrument of reasoning: for, as syllogism cannot produce its own principles, it must have them from induction: and if the general propositions, or secondary principles, be imperfectly or infirmly established, and much more, if they be taken at hazard, upon authority, or by arbitrary assumption, like those of Aristotle, all the syllogising in the world is a vain and useless logomachy, only instrumental to the multiplication of false learning, and to the invention and confirmation of error. The truth of syllogisms depends ultimately on the truth of axioms, and the truth of axioms on the soundness of inductions.'

Tatham's Chart and Scale of Truth. But though induction is prior in order, as well as superior in utility, to syllogism, we have thought it expedient to treat of it last; both because syllogism is an easier exercise of the reasoning faculty than induction, and because it is the method of mathematics, the first science of reason in which the student is commonly initiated.

SECT. VI.—OF DEMONSTRATION.

1. Having despatched what seemed necessary with regard to induction and syllogism; we now proceed to consider the laws of demonstration. And here it must be confessed that, in strict demonstration, which removes from the mind all possibility of doubt or error, the inductive method of reasoning can have no place. When the experiments and observations from which the general conclusion is drawn are numerous and extensive, the result of this mode of reasoning is moral certainty; and, could the inductions be made complete, it would be absolute certainty, equally convincing with mathematical demonstration. But however numerous and extensive the observations and experiments may be, upon which an inductive conclusion is established, they must of necessity come short of the number and extent of nature; which in some cases, by its immensity, defeats all possibility of their co-extension; and in others, by its distance, lie out of the reach of their immediate application. Though truth does not appear in all other departments of learning with that bold and resistless conviction with which it presides in mathematical science, it shines through them all, if not interrupted by prejudice or perverted by error, with a clear and useful, though inferior strength. And as it is not necessary, for the general safety or convenience of a traveller, that he should always enjoy the heat and splendor of a mid-day sun, whilst he can with much more ease pursue his journey under the weaker influence of a morning or an evening ray; so it is not requisite, for the various concerns and purposes of life, that men should be led by truth of the most redundant brightness. Such truth is to be had only in those sciences which are conversant about ideas and their various relations; where, every thing being certainly what it appears to be, definitions and axioms arise from mere intuition. Here syllogism takes up the process from the beginning; and by a sublime intellectual motion advances from the simplest axioms to the most complicated speculations, and exhibits truth springing out of its first and purest elements, and spreading on all sides into a system of science. As each step in the progress is syllogistic, we shall endeavour to explain the use and application of syllogisms in this species of reasoning.

We have seen that, in all the different appearances they put on, we still arrive at a just and legitimate conclusion: now it often happens, that the conclusion of one syllogism becomes a previous proposition in another; by which means great numbers of them are sometimes linked together in a series, and truths are made to follow one another in train. And as in such a concatenation of syllogisms all the various ways of

reasoning that are truly conclusive may be with safety introduced; hence it is plain, that in deducing any truth from its first principles, especially where it lies at a considerable distance from them, we are at liberty to combine all the several kinds of syllogisms above explained, according as they are found best to suit the end and purpose of our enquiries. When a proposition is thus, by means of syllogisms, collected from others more evident and known, it is said to be proved; so that we may, in general, define the proof of a proposition to be a syllogism, or a series of syllogisms, collecting that proposition from known and evident truths. But, more particularly, if the syllogisms of which the proofs consist admit of no premises but definitions, self-evident truths, and propositions already established, then is the argument so constituted called a demonstration: whereby it appears that demonstrations are ultimately founded on definitions and self-evident propositions.

2. All syllogisms, whether compound, multi-form, or defective, are reducible to plain simple syllogisms in some one of the four figures. But this is not all. Syllogisms of the first figure, in particular, admit of all possible conclusions: that is, any proposition, whether a universal affirmative or universal negative, a particular affirmative or particular negative, which fourfold division embraces all their varieties; any one of these may be inferred by virtue of some syllogism in the first figure. By these means it happens, that the syllogisms of all the other figures are reducible also to syllogisms of the first figure, and may be considered as standing on the same foundation with them. To demonstrate and explain the manner of this reduction would too much swell this treatise. It is enough to notice that the thing is universally known and allowed among logicians, to whose writings we refer such as desire farther satisfaction in this matter. This then being laid down, it is plain that any demonstration whatever may be considered as composed of a series of syllogisms, all in the first figure. For, since all the syllogisms that enter the demonstration are reducible to syllogisms of some one of the four figures; and since the syllogisms of all the other figures are farther reducible to syllogisms of the first figure, it is evident, that the whole demonstration may be resolved into a series of these last syllogisms. Let us now, if possible, discover the ground on which the conclusion rests in syllogisms of the first figure; because, by so doing, we shall arrive at a universal principle of certainty, whence the evidence of all demonstrations in all their parts may be ultimately derived.

3. The rules, then, of the first figure are briefly these: the middle term is the subject of the major proposition, and the predicate of the minor. The major is always a universal proposition, and the minor always affirmative. Let us now see what effect these rules will have in reasoning. The major is a universal proposition of which the middle term is the subject, and the predicate of the conclusion the predicate. Hence it appears, that in the major the predicate of the conclusion is always affirmed or denied universally of the middle term. Again,

the minor is an affirmative proposition, whereof the subject of the conclusion is the subject, and the middle term the predicate. Here then the middle term is affirmed of the subject of the conclusion; that is, the subject of the conclusion is affirmed to be comprehended under, or to make a part of, the middle term. Thus then we see what is done in the premises of a syllogism of the first figure. The predicate of the conclusion is universally affirmed or denied of some idea. The subject of the conclusion is affirmed to be or to make a part of that idea. Hence it naturally and unavoidably follows, that the predicate of the conclusion ought to be affirmed or denied of the subject. To illustrate this by an example, we shall resume one of the syllogisms of the first section: 'every creature possessed of reason and liberty is accountable for his actions:—Man is a creature possessed of reason and liberty:—Therefore man is accountable for his actions.' Here, in the first proposition, the predicate of the conclusion, accountability, is affirmed of all creatures that have reason and liberty. Again, in the second proposition, man, the subject of the conclusion, is affirmed to be or to make a part of this class of creatures. Hence the conclusion necessarily and unavoidably follows, viz. that man is accountable for his actions; because, if reason and liberty be that which constitutes a creature accountable, and man has reason and liberty, it is plain he has that which constitutes him accountable. In like manner, where the major is a negative proposition, or denies the predicate of the conclusion universally of the middle term, as the minor always asserts the subject of the conclusion to be or make part of that middle term, it is no less evident that the predicate of the conclusion ought in this case to be denied of the subject. So that the ground of reasoning, in all syllogisms of the first figure, is manifestly this, 'whatever may be affirmed universally, of any idea, may be affirmed of every one or any number of particulars comprehended under that idea.' And again, 'whatever may be denied universally, of any idea, may be in like manner denied of every one or any number of its individuals. These two propositions are called by logicians the dictum de omni, and dictum de nullo; and are indeed the great principles of syllogistic reasoning, as all conclusions whatever either rest immediately upon them, or upon propositions deduced from them. But what adds greatly to their value is, that they are really self-evident truths, and such as we cannot gainsay without running into an express contradiction. To affirm, for instance, that no man is perfect, and yet argue that some men are perfect; or to say that all men are mortal, and yet that some men are not mortal, is to assert a thing to be and not to be at the same time.

4. And now we may affirm that, in all syllogisms of the first figure, if the premises are true, the conclusion must also be true. If it be true that the predicate of the conclusion, whether affirmative or negative, agrees universally to some idea; and if it be also true that the subject of the conclusion is a part of, or comprehended under that idea; then it necessarily follows, that

the predicate of the conclusion agrees also to the subject. For to assert the contrary, would be to run counter to some one of the two principles before established; that is, it would be to maintain an evident contradiction. And thus we are come at last to the point we have been all along endeavouring to establish; namely, that every proposition which can be demonstrated is necessarily true. For as every demonstration may be resolved into a series of syllogisms, all in the first figure; and as in any one of these syllogisms, if the premises are true, the conclusion must be so too; it evidently follows that, if all the several premises are true, all the several conclusions are so, and consequently the conclusion also of the last syllogism, which is always the proposition to be demonstrated. Now, that all the premises of a demonstration are true, will easily appear from the very nature and definition of that form of reasoning. A demonstration is a series of syllogisms, all whose premises are either definitions, self-evident truths, or propositions already established. Definitions are identical propositions, wherein we connect the description of an idea with the name by which we choose to have that idea called, and therefore as to their truth there can be no dispute. Self-evident propositions appear true of themselves, and leave no doubt or uncertainty in the mind. Propositions before established are no other than conclusions gained, by one or more steps, from definitions and self-evident principles, that is, from true premises, and therefore must needs be true. Whence, all the previous propositions of a demonstration being manifestly true, the last conclusion, or proposition to be demonstrated, must be so too. So that demonstration not only leads to certain truth, but we have here also a clear view of the ground and foundation of that certainty. For as, in demonstrating, we may be said to do nothing more than combine a series of syllogisms together, all resting on the same bottom; it is plain that one uniform ground of certainty runs through the whole, and that the conclusions are every where built upon some one of the two principles before established as the foundation of all reasoning. These two principles are easily reduced into one, and may be expressed thus: whatever predicate, whether affirmative or negative, agrees universally to any idea; the same must agree to every one or any number of individuals comprehended under that idea. And thus we have, according to our first design, reduced the certainty of demonstration to one simple and universal principle, which carries its own evidence with it, and which is indeed the ultimate foundation of all syllogistic reasoning.

5. Demonstration therefore serving as an infallible guide to truth, and standing on so sure and unalterable a basis, we may now venture to assert, that the rules of logic furnish a sufficient criterion for distinguishing between truth and falsehood. For, since every proposition that can be demonstrated is necessarily true, he is able to distinguish truth from falsehood, who can with certainty judge when a proposition is truly demonstrated. Now a demonstration is nothing more than a concatenation of syllogisms, all whose

premises are definitions, self-evident truths, or propositions previously established. To judge therefore of the validity of a demonstration, we must distinguish whether the definitions that enter it are genuine and truly descriptive of the ideas they are meant to exhibit; whether the propositions assumed without proofs as intuitive truths have really that self-evidence to which they lay claim: whether the syllogisms are drawn up in due form, and agreeable to the laws of argumentation: in fine, whether they are combined together in a just and orderly manner, so that no demonstrable propositions serve any where as premises unless they are conclusions of previous syllogisms. Now it is the business of logic, in explaining the several operations of the mind, fully to instruct in all these points. It teaches the nature and end of definitions, and lays down the rules by which they ought to be framed. It unfolds the several species of propositions, and distinguishes the self-evident from the demonstrable. It delineates also the different forms of syllogisms, and explains the laws of argumentation proper to each. In fine, it describes the manner of combining syllogisms, so as that they may form a train of reasoning, and lead to the successive discovery of truth. The precepts of logic, therefore, as they enable us to judge with certainty when a proposition is duly demonstrated, furnish a sure criterion for the distinguishing between truth and falsehood.

6. Perhaps it may be objected, that demonstration is a thing very rare and uncommon, as being the prerogative of but a few sciences, and therefore the criterion here given can be of no great use. But wherever, by the bare contemplation of our ideas, truth is discoverable, there also demonstration may be attained. Now that is an abundantly sufficient criterion which enables us to judge with certainty in all cases where the knowledge of truth comes within our reach; for, with discoveries that lie beyond the limits of the human mind, we have, properly, no business. When a proposition is demonstrated, we are certain of its truth. When, on the contrary, our ideas are such as have no visible connexion or repugnance, and therefore furnish not the proper means of tracing their agreement or disagreement, there we are sure that scientific knowledge is not attainable. But where there is some foundation of reasoning, which yet amounts not to the full evidence of demonstration, there the precepts of logic, by teaching us to determine aright of the degree of proof, and of what is still wanting to render it full and complete, enable us to make a due estimate of the measures of probability, and to proportion our assent to the grounds on which the proposition stands. And this is all we can possibly arrive at, or even so much as hope for, in the exercise of faculties so imperfect and limited as ours.

7. Before we conclude this section, it is proper to take notice of the distinction of demonstration into *direct* and *indirect*. A direct demonstration is, when, beginning with definitions, self-evident propositions, or known and allowed truths, we form a train of syllogisms, and combine them in an orderly manner, continuing the series through a variety of successive steps, until

at last we arrive at a syllogism whose conclusion is the proposition to be demonstrated. Proofs of this kind leave no doubt or uncertainty behind them; because, all the several premises being true, the conclusion must be so too, and of course the very last conclusion or proposition to be proved. The other species of demonstration is the indirect, or, as it is sometimes called, the apagogical. The manner of proceeding here is, by assuming a proposition which directly contradicts that which we mean to demonstrate; and thence, by a continued train of reasoning, in the way of a direct demonstration, deducing some absurdity or manifest untruth. For hereupon we conclude that the proposition assumed was false; and thence again, by an immediate consequence, that the proposition to be demonstrated is true. Thus Euclid, in his third book, being to demonstrate that circles which touch one another inwardly have not the same centre, assumes the direct contrary to this, viz. that they have the same centre; and thence, by an evident train of reasoning, proves that a part is equal to the whole. The supposition therefore leading to this absurdity he concludes to be false, and thence immediately infers, that they have not the same centre.

8. Now, because this manner of demonstration is accounted by some not altogether so clear and satisfactory, we shall therefore endeavour to show that it leads to truth and certainty equally with the other. Two propositions are said to be contradictory, when that which is asserted to be in the one is asserted not to be in the other. Thus the propositions, Circles that touch one another inwardly have the same centre, and Circles that touch one another inwardly have not the same centre, are contradictories, because the second asserts the direct contrary of what is asserted in the first. Now, in all contradictory propositions, this holds universally, that one of them is necessarily true, and the other necessarily false. For, if it be true that circles which touch one another inwardly have not the same centre, it is unavoidably false that they have the same centre. On the other hand, if it be false that they have the same centre, it is necessarily true that they have not the same centre. Since therefore it is impossible for them to be both true or both false at the same time; it unavoidably follows that one is necessarily true, and the other necessarily false. This then being allowed, which is indeed self-evident, if any two contradictory propositions are assumed, and one of them can, by a clear train of reasoning, be demonstrated to be false, it necessarily follows that the other is true. For, as the one is necessarily true and the other necessarily false, when we come to discover which is the false proposition, we thereby also know the other to be true.

9. Now this is precisely the manner of an indirect demonstration, as is evident from the account given of it above. For there we assume a proposition which directly contradicts that which we mean to demonstrate; and having, by a continued series of proofs, shown it to be false, thence infer that its contradictory, or the proposition to be demonstrated, is true. As, therefore, this last conclusion is certain and unavoidable;

let us next enquire after what manner we come to be satisfied of the falsehood of the assumed proposition, that so no possible doubt may remain as to the force and validity of demonstrations of this kind. The manner then is plainly this: Beginning with the assumed proposition, we, by the help of definitions, self-evident truths, or propositions already established, continue a series of reasoning, in the way of a direct demonstration, until at length we arrive at some absurdity or known falsehood. Thus Euclid, in the example before-mentioned, from the supposition that circles touching one another inwardly have the same centre, deduces, that a part is equal to the whole. Since, therefore, by a due and orderly process of reasoning, we come at last to a false conclusion; it is manifest that all the premises cannot be true; for, were all the premises true, the last conclusion must be so too, by what has been before demonstrated. Now, as to all the other premises made use of in the course of reasoning, they are manifest and known truths by supposition, as being either definitions, self-evident propositions, or truths previously established. The assumed proposition is that only as to which any doubt or uncertainty remains. That alone, therefore, can be false; and indeed, from what has been already shown, must unavoidably be so. And thus we see that, in indirect demonstrations, two contradictory propositions being laid down, one of which is demonstrated to be false, the other, which is always the proposition to be proved, must necessarily be true; so that here, as well as in the direct way of proof, we arrive at a clear and satisfactory knowledge of truth.

10. This is universally the method of reasoning in all apagogical or indirect demonstrations. But if any proposition is assumed from which, in a direct train of reasoning, we can deduce its contradictory; the proposition so assumed is false, and the contradictory one true. For, if we suppose the assumed proposition to be true, then since all the other premises that enter the demonstration are also true, we shall have a series of reasoning consisting wholly of true premises; whence the last conclusion, or contradictory of the assumed proposition, must be true likewise: so that we should thus have two contradictory propositions both true at the same time, which is manifestly impossible. The assumed proposition, therefore, whence this absurdity flows, must necessarily be false; and consequently its contradictory, which is here the proposition deduced from it must be true. If then any proposition is proposed to be demonstrated, and we assume the contradictory of that proposition, and thence directly infer the proposition to be demonstrated; by these very means we know, that the proposition so inferred is true. For since, from an assumed proposition, we have deduced its contradictory, we are thereby certain that the assumed proposition is false; and if so, then its contradictory, or that deduced from it, which in this case is the same with the proposition to be demonstrated, must be true.

11. We have a curious instance of this in the twelfth proposition of the ninth book of the Elements. Euclid there proposes to demonstrate,

that in any series of numbers, rising from unity in geometrical progression, all the prime numbers that measure the last term in the series will also measure the next after unity. In order to this, he assumes the contradictory of the proposition to be demonstrated: namely, that some prime number measuring the last term in the series does not measure the next after unity, and thence, by a continued train of reasoning, proves that it actually does measure it. Hereupon he concludes the assumed proposition to be false; and that which is deduced from it, or its contradictory, which is the very proposition he proposed to demonstrate, to be true. Now that this is a just and conclusive way of reasoning is abundantly manifest from what we have so clearly established above. Whence it appears how necessary some knowledge of the rules of logic is, to enable us to judge of the force, justness, and validity of demonstrations. For, though it is readily allowed, that by the mere strength of our natural faculties we can at once discern that, of two contradictory propositions, the one is necessarily true, and the other necessarily false; yet when they are so linked together in a demonstration, as that the one serves as a previous proposition whence the other is deduced, it does not so immediately appear, without some knowledge of the principles of logic, why that alone, which is collected by reasoning, ought to be embraced as true, and the other, whence it is collected, to be rejected as false.

12. Having thus sufficiently evinced the certainty of demonstration in all its branches, and shown the rules by which we ought to proceed, in order to arrive at a just conclusion, according to the various ways of arguing made use of; it is needless to enter upon a particular consideration of those several species of false reasoning which logicians distinguish by the name of *sophisms*. He that thoroughly understands the form and structure of a good argument, will of himself readily discern every deviation from it. And although sophisms have been divided into many classes, which are all called by sounding names, that therefore carry in them much appearance of learning; yet are the errors themselves so very palpable and obvious, that it would be lost labor to write for a man capable of being misled by them. Here, therefore, we choose to conclude this part of logic; and shall in the next give some account of method, which, though inseparable from reasoning, is nevertheless always considered by logicians as a distinct operation of the mind; because its influence is not confined to the mere exercise of the reasoning faculty, but extends in some degree to all the transactions of the understanding.

PART IV.

OF METHOD.

SECT. I.—OF THE DIFFERENT SPECIES OF METHOD.

1. We have now done with the first three operations of the mind, whose office it is to search after truth, and enlarge the bounds of human knowledge. There is yet a fourth, which regards the disposal and arrangement of our

thoughts, when we endeavour so to put them together as that their mutual connexion and dependence may be clearly seen. This is what logicians call method, and place always the last in order in explaining the powers of the understanding; because it necessarily supposes a previous exercise of our other faculties, and some progress made in knowledge, before we can exert it in any extensive degree.

2. In this view, it is plain that we must be previously well acquainted with the truths we are to combine together; otherwise, how could we discern their several connexions and relations, or so dispose of them as their mutual dependence may require? But it often happens that the understanding is employed, not in the arrangement and composition of known truths, but in the search and discovery of such as are unknown. And here the manner of proceeding is very different. We assemble at once our whole stock of knowledge relating to any subject, and, after a general survey of things, begin with examining them separately and by parts. Hence, though at our first setting out we were acquainted only with some of the grand outlines of truth, we gradually discover the whole: and thus by a narrow scrutiny into things, when we have unravelled any part of knowledge, and traced it to its first principles, so that the whole contexture of it lies open to the view of the mind; here by taking it the contrary way, and beginning with these principles, we can so adjust and put together the parts, as the order or method of science requires.

3. But, as these things are best understood when illustrated by examples, let us suppose any machine, for instance a watch, presented to us, whose structure we are as yet unacquainted with, but want, if possible, to discover. The manner of proceeding in this case is by taking the whole in pieces, and examining the parts separately one after another. When, by such a scrutiny, we have thoroughly informed ourselves concerning each, we then compare them together, in order to judge of their mutual action. Thus we gradually trace out the make and composition of the whole, and come at length to discover how parts of such a form, and so put together, constitute that particular machine called a watch, and contribute to all the several motions observable in it. This discovery being made, we can take things the contrary way, and, beginning with the parts, so dispose and connect them as their several uses and structures require, until at length we have the whole presented to our view.

4. And as in tracing and examining the works of art, so it is in a great measure in unfolding any part of human knowledge; for the relations and mutual operations of things do not always immediately appear upon comparing them together. Hence we have recourse to intermediate ideas, and, by means of them, are furnished with those previous propositions that lead to the conclusion we are in quest of. And, if it so happen that the previous propositions themselves are not sufficiently evident, we endeavour, by new middle terms, to ascertain their truth; still tracing things backward, in

a continual series, until we arrive at some syllogism where the premises are first and self-evident principles. This done, we become perfectly satisfied as to the truth of all the conclusions we have passed through, as they are now seen to stand upon the firm and immovable foundation of our intuitive perceptions: and, as we arrived at this certainty by tracing things backward to their original principles, so may we at any time renew it by a direct contrary process, if, beginning with these principles, we carry our thoughts forward, until they lead us, by a connected chain of proofs, to the very last conclusion of the series.

5. Hence it appears that, in disposing and putting together our thoughts, either for our own use, that the discoveries we have made may at all times lie open to the review of the mind, or where we mean to communicate and unfold the discoveries to others, there are two ways of proceeding equally within our choice; for we may so propose the truths relating to any part of knowledge, as they presented themselves to the mind in the manner of investigation; carrying on the series of proofs, in a reverse order, until they at last terminate in first principles: or, beginning with these principles, we may from them deduce, by a direct train of reasoning, all the several propositions we want to establish. The diversity in the manner of arranging our thoughts gives rise to the two-fold division of method established among logicians; for method, according to their use of the word, is nothing but the order and disposition of our thoughts relating to any subject. When truths are so proposed and put together as they were or might have been discovered, this is called the analytic method, or the method of resolution, as it traces things backward to their source, and resolves knowledge into its first principles. When, on the other hand, they are deduced from these principles, and connected according to their mutual dependence, so that the truths first in order tend always to the demonstration of those that follow; this constitutes what we call the synthetic method: for here we proceed by gathering together the several scattered parts of knowledge, and combining them into one whole, or system, in such a manner that the understanding is enabled distinctly to follow truth through all her different stages and gradations.

6. The first of these two species of method has also obtained the name of the method of invention, because it observes the order in which our thoughts succeed one another in the invention or discovery of truth. The other, again, is often denominated the method of doctrine or instruction; as, in laying our thoughts before others, we generally choose to proceed in the synthetic manner, deducing them from their first principles. For although there is great pleasure in pursuing truth in the method of investigation, because it places us in the condition of the inventor, and shows the particular train and process of thinking by which he arrived at his discoveries; yet it is not so well adapted to the purposes of evidence and conviction. For, at our first setting out, we are commonly unable to

our researches are for some time little better than a mere groping in the dark. And, even after light begins to break in upon us, we are still obliged to make many reviews, and a frequent comparison of the several steps of the investigation among themselves. Nay, when we have unravelled the whole, and reached the very foundation on which our discoveries stand, all our certainty in regard to their truth will be found in a great measure to rise from that connexion which we are now able to discern between them and first principles, taken in the order of composition. But in the synthetic manner of disposing our thoughts, the case is quite different; for as we here begin with the intuitive truths, and advance by regular deduction from them, every step brings evidence and conviction with it; so that, in our progress from one part of knowledge to another, we have always a clear perception of the ground on which our assent rests. In communicating, therefore, our discoveries to others, this method is apparently to be chosen, as it greatly improves and enlightens the understanding, and leads to an immediate perception of truth.

SECT. II.—OF THE UTILITY OF LOGIC.

The logic which for so many ages kept possession of the schools, and was deemed the most important of the sciences, has long been condemned as a mere art of wrangling, of very little use in the pursuit of truth. Attempts have been made to restore it to credit, but without success; and of late years little or no attention whatever has been paid to the art of reasoning in the course of what is called a liberal education. As both extremes are faulty, we cannot conclude this short treatise more properly than with the following reflections on the utility of this science.

If Aristotle was not the inventor of logic, he was certainly the prince of logicians. The whole theory of syllogisms he claims as his own, and as the fruit of much time and labor; and it is universally known, that the later writers on the art have borrowed their materials almost entirely from his *Organon* and Porphyry's *Introduction*. But after men had labored nearly 2000 years in search of truth by the help of syllogisms, lord Bacon proposed the method of induction, as more effectual for that purpose; and since his days the art of logic has gradually fallen into disrepute.

To this consequence many causes contributed. The art of syllogism is admirably calculated for wrangling; and by the schoolmen it was employed, with too much success, to keep in countenance the absurdities of the Romish church. Under their management it produced numberless disputes, and numberless sects, that fought against each other with much animosity, without gaining or losing ground; but it did nothing considerable for the benefit of human life, whilst the method of induction has improved arts, and increased knowledge. It is no wonder, therefore, that the excessive admiration of Aristotle, which continued for so many ages, should end in an undue contempt; and that the high esteem of logic as the grand engine of science should at last make way for too unfavorable an opinion, which

seems now prevalent, of its being unworthy of a place in a liberal education. Men rarely leave one extreme without running into the contrary: those who think according to the fashion will be as prone to go into the present extreme as their grandfathers were to go into the former; and even they who in general think for themselves, when they are offended at the abuse of any thing, are too apt to entertain prejudice against the thing itself. 'In practice,' says the learned Warburton in his *Introduction to Julian, &c.*, 'logic is more a trick than a science, formed rather to amuse than to instruct. And in some sort we may apply to the art of syllogism what a man of wit says of rhetoric, that it only tells us how to name those tools which nature had before put into our hands. In the service of chicane, indeed, it is a mere juggler's knot, now fast, now loose; and the schools where this legerdmain was exercised in great perfection are full of the stories of its wonders.' The authority of Warburton is great; but it may be counterbalanced by another which, on subjects of this nature, is confessedly greater.

'Laying aside prejudice, whether fashionable or unfashionable, let us consider (says Dr. Reid in his *Appendix to lord Kames's Sketch on the Principle and Progress of Reason*), whether logic may be made subservient to any good purpose. Its professed end is to teach men to think, to judge, and to reason with accuracy. No man will say that this is a matter of little importance; the only thing therefore that can admit of doubt is, whether it can be taught?'

'To resolve this doubt, it may be observed, that our rational faculty is the gift of God, given to men in very different measures: Some have a large portion, some a less; and, when there is a remarkable defect of the natural power, it cannot be supplied by any culture. But this natural power, even where it is the strongest, may lie dead for want of the means of improvement. Many a savage may have been born with as good faculties as a Newton, a Bacon, or an Aristotle; but their talents were buried by having never been put to use, whilst those of the philosophers were cultivated to the best advantage. It may likewise be observed, that the chief means of improving our rational power is the vigorous exercise of it in various ways and on different subjects, by which the habit is acquired of exercising it properly. Without such exercise, and good sense also, a man who has studied logic all his life may be only a petulant wrangler, without true judgment or skill of reasoning in any science.'

This must have been Locke's meaning, when, in his *Thoughts on Education*, he says, 'If you would have your son to reason well, let him read *Chillingworth*.' The state of things is much altered since Locke wrote: logic has been much improved, chiefly by his writings; and yet much less stress is laid upon it, and less time consumed in its study. His counsel, therefore, was judicious and seasonable: to wit, that the improvement of our reasoning power is to be expected much more from an intimate acquaintance with the authors who reason best, than from studying voluminous systems of school

logic. But if he had meant, that the study of logic was of no use, nor deserved any attention, he surely would not have taken the pains to make so considerable an addition to it, by his *Essay on the Human Understanding*, and by his *Thoughts on the Conduct of the Understanding*; nor would he have remitted his pupil to *Chillingworth*, the acutest logician as well as the best reasoner of his age.

There is no study better fitted to exercise and strengthen the reasoning powers than that of the mathematical sciences; because there is no other branch of science which gives such scope to long and accurate trains of reasoning, or in which there is so little room for authority or prejudice of any kind to give a false bias to the judgment. When a youth of moderate parts begins to study Euclid, every thing is new to him: his apprehension is unsteady, his judgment is feeble, and rests partly upon the evidence of the thing, and partly upon the authority of his teacher. But every time he goes over the definitions, the axioms, the elementary propositions, more light breaks in upon him; and, as he advances, the road of demonstration becomes smooth and easy: he can walk in it firmly, and take wider steps, till at last he acquires the habit, not only of understanding a demonstration, but of discovering and demonstrating mathematical truths.

It must indeed be confessed, that a man without the rules of logic may acquire a habit of reasoning justly in mathematics, and perhaps in any other science. Good sense, good examples, and assiduous exercise, may bring a man to reason justly and acutely in his own profession without rules. But whoever thinks, that from this concession he may infer the inutilty of logic, betrays, by this inference, a great want of that art; for he might as well infer, because a man may go from London to Edinburgh by the way of Paris, that therefore any other road is useless.

There is perhaps no art which may not be acquired, in a very considerable degree, by example and practice, without reducing it to rules. But practice joined with rules may carry a man forward in his art farther and more quickly than practice without rules. Every ingenious artist knows the utility of having his art reduced to rules, and thereby made a science. By rules he is enlightened in his practice, and works with more assurance. They enable him sometimes to correct his own errors, and often to detect the errors of others; and he finds them of great use to confirm his judgment, to justify what is right, and to condemn what is wrong. Now mathematics are the noblest praxis of logic. Through them we may perceive how the stated forms of syllogism are exemplified in one subject, namely the predicament of quantity; and by marking the force of these forms, as they are there applied, we may be enabled to apply them of ourselves elsewhere. Whoever, therefore, will study mathematics with this view, will become, not only by mathematics a more expert logician, and by logic a more rational mathematician, but a wiser philosopher, and an acuter reasoner, in all the possible subjects either of science or deliberation. But when mathematics,

instead of being applied to this excellent purpose, are used, not to exemplify logic, but to supply its place; no wonder if logic fall into contempt, and if mathematics, instead of furthering science, become in fact an obstacle. For when men, knowing nothing of that reasoning which is universal, come to attach themselves for years to a single species, a species wholly involved in lines and numbers, the mind becomes incapacitated for reasoning at large, and especially in the search of moral truth. The object of mathematics is demonstration; and whatever, in that science, is not demonstration, is nothing, or at least below the sublime enquirer's regard. Probability, through its almost infinite degrees, from simple ignorance up to absolute certainty, is the terra incognita of the mathematician. And yet here it is that the great business of the human mind is carried on, in the search and discovery of all the important truths which concern us as reasonable beings. And here, too, it is, that all its vigor is exerted; for, to proportion the assent to the probability accompanying every varying degree of moral evidence, requires the most enlarged and sovereign exercise of reason.

In reasonings of this kind, will any man pretend that it is of no use to be well acquainted with the various powers of the mind by which we reason? Is it of no use to resolve the various kinds of reasoning into their simple elements; and to discover, as far as we are able, the rules by which these elements are combined in judging and in reasoning? Is it of no use to mark the various fallacies in reasoning, by which even the most ingenious men have been led into error? It must surely betray great want of understanding, to think these things useless or unimportant. Now these are the things which logicians have attempted; and which they have executed—not indeed so completely as to leave no room for improvement, but in such a manner as to give very considerable aid to our reasoning powers. That the principles they have laid down with regard to definition and division, with regard to the conversion and opposition of propositions, and the general rules of reasoning, are not without use, is sufficiently apparent from the blunders committed daily by those who disdain any acquaintance with them.

Although the art of categorical syllogism is confessedly little fitted for the discovery of unknown truth, it may yet be employed to excellent purpose, as it is perhaps the most compendious method of detecting a fallacy. A man in quest of unknown truths must generally proceed by the way of induction, from effects to causes; but he who, as a teacher, is to inculcate any system upon others, begins with one or more self-evident truths, and proceeds, in the way of demonstration, to the conclusion which he wishes to establish. Now every demonstration may be resolved into a series of syllogisms, of which the conclusion of the preceding always enters into the premises of that which follows; and if the first principles be clear and evident, and every syllogism in some legitimate mode and figure, the conclusion of the whole must infallibly be admitted. But, when the demonstration is thus

broken into parts, if we find that the conclusion of one syllogism will not, without altering the meaning of the terms, enter legitimately into the premises of that which should immediately follow; or, supposing it to make one of the premises of a new syllogism, if we find that the conclusion resulting from the whole series, thus obtained, is different from that of the demonstration; we may, in either of these cases, rest assured that the author's reasoning is fallacious, and leads to error; and that, if it carried an appearance of conviction before it was thus resolved into its elementary parts, it must have been owing to the inability of the mind to comprehend at once a long train of arguments. Whoever wishes to see the syllogistic art employed for this purpose, and to be convinced of the truth of what we have said respecting its utility, may consult the excellent writer recommended by Locke, who, in places innumerable of his incomparable book, has, without pedantry, even in that pedantic age, made the happiest application of the rules of logic for detecting and exposing the sophistry of his Jesuitical antagonist.

On the whole then, though we acknowledge that much time was wasted by our forefathers in syllogistic wrangling, which may be termed the mechanical part of logic, yet the art of forming and examining arguments is certainly an attainment well worthy the ambition of that being whose highest honor is to be endued with reason.

SECT. III.—DR. BROWN'S VIEW OF THIS SCIENCE.

The following is a condensed view of the general pretensions of the Aristotelian logic from Lectures on the Philosophy of the Human Mind by Dr. Brown, late professor of moral philosophy in the university of Edinburgh. In the condemnation of the science he may be found too severe and indiscriminating in the opinion of some of our readers, but his great and just fame as a metaphysician entitles him to a hearing.

Reasoning according to this author, then is nothing more than a number of propositions, consecutive in a certain order: it is a continued series of analytic operations developing the elements of our thought. In every proposition, that which is affirmed is a part of that of which it is affirmed, and the proposition, however technical its language may be, expresses only the single feeling of this relation. When I say snow is white, I state one of the many feelings which constitute my complex notion of snow. When I say man is fallible, I state one of the many imperfections which enter into my complex notion of man. The statements of one particular relation are simple propositions, in each of which a certain analysis is involved. But, when I reason, or add proposition to proposition in a certain series I merely prosecute my analysis, and prosecute it more or less minutely, according to the length of the ratiocination. When I say man is fallible, I state a quality involved in the nature of man, as any other part of an aggregate is involved in any

other comprehending whole. When I add, he may therefore err, even when he thinks himself least exposed to error, I state what is involved in the notion of his fallibility. When I say, he therefore must not expect that all men will think as he does, even in points which appear to have no obscurity, I state that which is involved in the possibility of his and their erring even on such points. When I say, that he therefore should not dare to punish those who merely differ from him, and who may be right even in differing from him, I state what is involved in the absurdity of expecting that all men should think as he does. And when I say, that any particular legislative act of intolerance is as unjust as it is absurd, I state only what is involved in the impropriety of attempting to punish those who have no other guilt than that of differing in opinion from others, who are confessedly of a nature as fallible as their own.

In all this reasoning, though composed of many propositions, there is obviously only a progressive analysis, with a feeling, at each step, of the relation of parts to the whole, the predicate of each proposition being the subject of a new analysis in the proposition which follows it. Man is fallible. He who is fallible may err, even when he thinks himself least exposed to error. He who may be in error, even when he thinks himself safest from it, ought not to be astonished that others should think differently from him, even on points which may seem to him perfectly clear; and thus, successively, through the whole ratiocination, the predicate becomes in its turn a subject of new analysis, till we arrive at the last proposition, which is immediately extended backwards to the primary subject of analysis, man,—as involved in that which is itself involved in the primary complex conception, or aggregate of many qualities.

If reasoning be nothing more than a number of propositions, consecutive in a certain order of mutual relation between the subjects and predicates, what are we to think of that art of reasoning, which, for so many ages, banished reason from the schools; of that art which rendered it so laborious a drudgery to be a little more ignorant than before; which could produce so much disputation without any subject of dispute, and so many proud victories of nothing over less than nothing! Such was the scholastic art of logic: an art which was held out, not so much as an auxiliary to reason, as with the still higher praise of being an instrument that might almost supply its place, and by the possession of which the acute and accurate might argue still more acutely and accurately, and imbecility itself become a champion worthy of encountering them; and, though not perhaps the victor, at least not always the vanquished.

That there may be, or rather that there is, a rational logic, we are far from denying; and that many useful directions, in conformity with a certain system of rules, may be given to the inexperienced student that may facilitate to him acquisitions of knowledge which, but for such directions, he would have made only more slowly, or perhaps not made at all. The art of reasoning, however, which a judicious logic affords, is

not so much the art of acquiring knowledge as the art of communicating it to others, or recording it in the manner that may be most profitable for our own future advancement in the track which we have been pursuing. Its direct benefit to ourselves is rather negative than positive—teaching us the sources of error in our mental constitution, and in all the accidental circumstances of the language which we are obliged to use, and the society in which we must mingle,—and thus rather saving us from what is false, than bestowing on us what is true. Indeed, since we cannot produce directly in our mind any one conception, or any one feeling of relation, it is very evident that the influence of any art of reasoning on our trains of thought must be indirect only.

But, if an art of reasoning is to be given to us, it ought surely to be an art which will render the acquisition of knowledge more easy, not more difficult; an art which is to avail itself of the natural tendency of the mind to the discovery of truth, not to counteract this tendency, and to force the mind, if it be possible, to suspend the very progress which was leading it to truth. With which of these characters did the syllogistic logic more exactly correspond?

The natural progress of reasoning has been already explained and illustrated. One conception follows another conception, according to certain laws of suggestion (commonly termed *association*) to which our divine Author has adapted our mental constitution; and by another set of laws, which the same divine Author has established, certain feelings of relation arise from the consideration of the suggesting and suggested object. This is all in which reasoning as felt by us consists. We have the conception of A, it suggests B, and, these two conceptions co-exerting, we feel some relation which they bear to each other; B, thus suggested, suggests C, and the relation of these is felt in like manner; and thus through the longest ratiocination, analytical or proportional, each subject of our thought suggests something which forms a part of it and is involved in it, or something which has to it a certain relation of proportion; and the relation of comprehension in the one case, or of proportion in the other case, is felt accordingly at every step. Nothing surely can be simpler than a process of this kind; and it is not easy to conceive how the process could be made shorter than nature herself has rendered it, unless every truth were known to us by intuition. Objects and the relations of objects—these are all which reasoning involves; and these must always be involved in every reasoning. While reasoning, then, or a series of propositions, is necessary for the development of truth, the intervening conceptions which form the subjects of those propositions that connect one remote conception with another must arise successively in the mind, and their relations be felt in like manner, successively. What is it which the syllogistic art would confer on us in addition? To shorten the process of arriving at truth, it forces us to use, in every case, three propositions instead of the two which nature directs us to use. Instead of allowing us to say man is fallible he may

therefore err even when he thinks himself most secure from error, which is the spontaneous order of reasoning, the syllogistic art compels us to take a longer journey to the same conclusion, by the use of what is called a major proposition, a proposition which never rises spontaneously, for the best of all possible reasons, that it cannot rise without our knowledge of the very truth which is by supposition unknown. To proceed in the regular form of a syllogism, we must say, all beings that are fallible may err, even when they think themselves most secure from error. But man is a fallible being: he may therefore err, even when he thinks himself most secure from error. In our spontaneous reasonings, in which we arrive at precisely the same conclusions, and with a feeling of evidence precisely the same, there are, as we have said, no major propositions, but simply what, in this futile art, are termed technically the minor and the conclusion. The invention and formal statement of a major proposition, then, in every case, serve only to retard the progress of discovery, not to quicken it, or render it in the slightest degree more sure.

This retardation of the progress of reasoning is one circumstance which distinguishes the syllogism; but the absurdity, which is implied in the very theory of it, distinguishes it still more. It constantly assumes, as the first stage of that reasoning by which we are to arrive at a particular truth, our previous knowledge of that particular truth. The major is the very conclusion itself under another form, and its truth is not more felt than that which it professes to develop. Thus to take one of the many trifling examples which, in books of logic, are usually given, with a most appropriate selection, to illustrate this worse than trifling art, when, in order to prove that John is a sinner, I do not adduce any particular sin of which he has been guilty, but draw up my accusation more irresistibly, by the major of a syllogism. All men are sinners: John is a man: therefore John is a sinner. If I really attached any meaning to my major proposition, all men are sinners, I must, at that very moment, have felt as completely that John was a sinner, as after I had pursued him technically through the minor and conclusion.

The great error of the theory of the syllogism, consisted in supposing that, because all our knowledge may be technically reduced, in some measure, to general maxims, these maxims have naturally a prior and paramount existence in our thought, and give rise to those very reasonings which, on the contrary, give rise to them. It is not on account of our previous assent to the axiom, A whole is greater than a part,—that we believe any particular whole to be greater than any part of it; but we feel this truth in every particular case, by its own intuitive evidence, and the axiom only expresses briefly our various feelings of this kind without giving occasion to them. The general axiom is, in every case, posterior to the separate feeling of which it is only the brief expression, or at least without which, as prior to our verbal statement of the axiom, the axiom itself never could have formed a part of our system of knowledge. The syllogism therefore, which proceeds from the axiom to the de-

monstration of particulars, reverses completely the order of reasoning, and begins with the conclusion in order to teach us how we may arrive at it.

The natural process of reasoning, by two propositions, instead of the three which the syllogism would force us to use, has been allowed, indeed, by logicians to have a place in their system; because, with all their fondness for their own technical modes and figures, they had not quite sufficient hardihood to deny, that it is at least possible for us to reason sometimes, as in truth we always reason. Their only resource, therefore, was to reduce this natural process under their own artificial method, and to give it a name which might imply the necessity of this reduction, before the reasoning itself could be worthy of that honorable title. They supposed, accordingly, the proposition, which was technically wanting, to be understood in the mind of the thinker or hearer, and termed the reasoning, therefore, an enthymeme. It was, they said, a truncated or imperfect syllogism. They would have expressed themselves more accurately, if they had described their own syllogism, as, in its relation to the natural process of our thought, a cumbrous and overloaded enthymeme.

These remarks, though relating chiefly to the influence of this technical process, as a supposed mode of facilitating the acquisition of knowledge in our own meditative reasonings, show that if the syllogism was inefficacious, and worse than inefficacious as a process for discovering truth, it was not less inadequate as an instrument for communicating truth to others. A very little attention to the nature of the different propositions of the syllogism will be sufficient to show that the same fundamental error, which renders it useless for discovering truth, renders it equally useless for the development of it: and that, as our internal reasoning is only a series of enthymemes, it is only by such a series of enthymemes as that by which truth unfolds itself to our own minds that it can be successfully unfolded to the minds of others. As a mode of communicating knowledge the syllogism is indeed, if possible still more defective than as a mode of acquiring it. It does not give any additional knowledge, nor communicate the knowledge which it does communicate in any simpler, or shorter, or surer way. On the contrary, whatever knowledge it gives it renders more confined by being more cumbrous; and it cannot fail to train the mind which receives instruction this way to two of the most dangerous practical errors,—the errors of admitting, without proof, only what requires proof, and of doubting, that is to say, of requiring proof, only of what is evident. Such is the syllogism, considered as an instrument, either for facilitating our attainments in knowledge, or for communicating those attainments unto others.

The triumph of the syllogistic art, it must be confessed, however, is not as an art of acquiring or communicating truth, but as an art of disputation,—as the great art of proving any thing by any thing, *quidlibet per quodlibet probandi*. And if it be a merit to be able to dispute long and equally well, on subjects known and unknown, to vanquish an opponent by being in the wrong, and

sometimes too by being in the right, but without the slightest regard either to the right or the wrong, and merely as these accidental circumstances may have corresponded with certain skilful uses of terms without a meaning,—this merit the logicians of the schools unquestionably might claim. Indeed in controversies of this sort, in those ages of endless controversy, success, as has been very truly remarked, ‘tended no more to decide the question, than a man’s killing his antagonist in a duel serves now to satisfy any person of sense that the victor had right on his side, and that the vanquished was in the wrong.’

Of the direct influence of the school logic in retarding, and almost wholly preventing, the progress of every better science, it is unnecessary to attempt any additional illustration after the remarks already offered, and the masterly views of the subject presented by the great lord Bacon. But the indirect influence of this art was not less hurtful.

One of the most hurtful consequences of this method was the ready disguise of venerable ratiocination which it afforded for any absurdity. However futile an explanation might be, it was still possible to advance it in all the customary solemnities of mood and figure; and it was very natural, therefore, for those who heard what they had been accustomed to regard as reasoning to believe, that, in hearing a reasoning, they heard a reason.

Another very hurtful consequence of this technical system was, that the constant necessity of having recourse to some syllogistic form of argument, and of using these forms in cases in which the opinions involved in the syllogism were as clear before the syllogism as after it, rendered argument and belief, by a sort of indissoluble association, almost synonymous terms. If we had still to prove John to be fallible, after having proved, or at least obtained assent to the proposition, that all men are fallible, it was not easy to discover any truth so self-evident as not to stand, at least equally, in need of demonstration. Hence the constant tendency in the scholastic ages to prove what did not stand in need of proof. Every thing was *to be* demonstrated, and every thing *was* demonstrated; though it must be confessed the only effect of the demonstration frequently was to render obscure (as obscure as any thing self-evident could be rendered), what, but for the demonstration, could not have admitted of the slightest doubt.

Akin to this tendency of proving every thing, even self-evident propositions, by some syllogistic form, was the tendency which the mind acquired to apply many varieties of technical phraseology to the same proposition, so as to make

many propositions of *one*, as if every repetition of it, in another form of language, were the enunciation of another truth. It is impossible to read a single page of the old logicians without discovering innumerable examples of this. Indeed as the forms of technical expression, or at least the possible combinations of them are almost infinite, it is, in many cases, difficult to discover what principle of forbearance and mercy to the reader led the logician to stop at one of his identical propositions, rather than to extend the supposed ratiocination through many similar pages. There can be no doubt that the principle which produced many pages might with as much reason have produced as many volumes.

The reign of this philosophy may now be considered, like the age of Chivalry, as gone; for it is scarcely necessary to speak of a few admirers of the Aristotelian logic who have not yet vanished from among us, who love what is very ancient and what is written in Greek, and who have therefore two irresistible reasons for venerating that philosophy which is unquestionably much older than Newton, or Des Cartes, or Bacon, and as unquestionably written in language which saves it from vulgar eyes. Or, to speak with more candor of such misplaced sages of other times, there may perhaps be some few generous, but erring, lovers of wisdom, who, impressed with the real merits of Aristotle, and with the majesty of that academic sway, which he exercised for so long a period of the history of our race, give him credit for merit still greater and more extensive than he really possessed; but merit it must, at the same time, be acknowledged, which was long as indisputable as his real excellence, and which all the learned and honored, of every nation, in which learning could confer honor, united in ascribing to him, and gloried in being his worshippers. The worship, however, is now past, but there are effects of the idolatry which still remain. We have laid aside the superstition, but, as usually happens where superstition has reigned, we have retained many of the superstitious practices.

That we reason worse than we should have done, if our ancestors had reasoned better, there can be no doubt, because we should have profited by the results of their better reasoning; but there can be almost as little doubt that we suffer from their errors, in another way, by having imbibed some portion of the spirit of their dialectic subtleties; some greater passion for distinctions merely verbal, and more laborious demonstrations of things self-evident, than we should have felt from the mere imperfection of our intellectual nature, if the logic of Aristotle had never existed.

LOGWOOD, n. s. From *Laguna*, in the bay of Campeachy. A dye-wood: a species of *HÆMATOXYLON*, which see.

To make a light purple, mingle ceruse with Logwood water. *Peacham.*

Logwood is of a very dense and firm texture: and is the heart only of the tree which produces it. It is very heavy, and remarkably hard, and of a deep, strong red colour. It grows both in the East and

West Indies, but no where so plentifully as on the coast of the bay of Campeachy. *Hill’s Mat. Med.*

LOGWOOD. See *HÆMATOXYLON*. Logwood is used in great quantities for dyeing purple, and more especially black. All the colors, however, which can be prepared from it, are of a fading nature, and cannot, by any art, be made equally durable with those prepared from some other materials. Of all the colors prepared from log-

wood, the black is the most durable. Dr. Lewis recommends it as an ingredient in making ink. Logwood is also found to have a considerable astringent virtue as a medicine, and an extract of it is sometimes given with great success in diarrhoeas. See DYEING.

LOHAGHUR, or the Iron Fort, is a celebrated fortress of Hindostan, in Dowlatabad, and stands on a rock nearly perpendicular, of great height, and surrounded by a double stone wall. It is also well supplied with water, and has extensive magazines and store rooms in the solid rock. It belongs to the British, who took it not long since from the paishwa, and is about twenty miles north-west of Poona.

LOHEIA, a city of Yemen, Arabia, on the coast of the Red Sea, and at the bottom of a capacious but shallow bay. A large island, and a group of smaller ones, are a barrier against the sea to the north-west. It is defended by several towers, which admit cannon, and many of the houses are built of stone; but the greater number are mud huts. Vessels can only anchor at a distance from the town; and at low water heavy laden boats cannot approach. The trade is in a second rate species of coffee of inferior quality. Goods brought direct from India pay a duty of five per cent. here: all goods brought down the Red Sea, seven per cent.; and presents are necessary to a good understanding with the authorities. The water is bad, and the surrounding country desolate.

LO'HOCK, *n. s.* Fr. *lohoc, loch*. 'An electuary that is licked, not chewed, nor divided by the teeth,—Minsheu.

Lohock is an Arabian name for those forms of medicine which are now commonly called eclegmas, lambatives, or linctues. *Quincy.*

Lohocks and pectorals were prescribed, and venesection repeated. *Wiseman's Surgery.*

LOIN, *n. s.* Sax. *lenð*; Belg. *longie*; Ital. *longe*; Fr. *longe*. The back of an animal. In the plural, the reins of man: metaphorically, any source of progeny or production.

Thou slander of thy heavy mother's womb!
Thou loathed issue of thy father's loins!

Shakspeare.

My face I'll grime with filth,

Blanket my loins. *Id. King Lear.*

Shall these hands destroy the fruits of mine own loins?

Bp. Hall.

A multitude! like which the populous north
Poured never from her frozen loins, to pass
Rhene, or the Danaw, when her barbarous sons
Came like a deluge on the south. *Milton.*

LOIR, a river of France, which rises at Cernay, in the arrondissement of Chartres, department of the Eure et Loire. It begins to be navigable for floats at Ponce, and for vessels at Coësmont, near Chateau du Loir, in the department of Sarthe. In its course, which is about 165 miles, it receives the Ozanne the Couie, the Braye, the Long, the One, and several small rivers.

LOIR-ET-CHER, a department of France, bounded on the north-west by that of the Sarthe, north-east by that of the Loiret, south by that of the Indre, south-east by that of the Cher, and south-west by that of the Indre-et-Loire. It is formed of part of the Blaisois and the Sologne,

a dependency of the old province of Orléannais, and derives its name from the two rivers: the Loir, which flows into it from the north toward the east, and the Cher, which runs from east to west. The chief place in this prefecture is Blois: it contains three arrondissements; Blois, containing 111,075 inhabitants; Romarantin 43,624; and Vendôme 72,828; being a total population of 227,527, on a surface of 2871 square miles. These are subdivided into twenty-four justiciaries of the peace, or cantons, and 309 communes, with a territorial revenue of 11,721,000 francs. It is in the fourth military division, belongs to the diocese and royal court of Orleans, and is divided into two electoral arrondissements, sending three members to the chamber of deputies.

This is almost entirely a level country, having very few hills; the Loire, in its course, divides it into two very distinct parts: that on the left bank, which is nearly covered with marshes, pools, extensive forests, uncultivated and sandy lands, where scarcely any thing but buck-wheat will grow; while that on the right bank of the river presents an appearance of the greatest fertility, being composed of rich and well cultivated plains, hills covered with vineyards, and beautiful verdant meadows. A long line of small hills, planted with vines and fruit trees, extends through the whole course of the river, on the borders of which are seen handsome residences, and villages shaded with groves of trees. The climate is generally mild and temperate, and the air pure and healthy, with the exception of some parts near Romarantin, from the marshes of which unwholesome exhalations arise. The soil is chalky, but produces more than sufficient for its inhabitants. It contains 66,324 hectares of forest land (chiefly oaks and hornbeams), and 28,000 hectares of vineyards. The average produce of a hectare of arable land amounts to 17 francs 15 centimes. It yields all kinds of grain, especially wheat and buck-wheat, chestnuts, fruits, and vegetables of every description; a great quantity of fine hemp, wines of excellent quality, mulberry trees, wood, and good pasturage. There is abundance of game, as red partridges, foxes, and wolves; the rivers are well stocked with fish, especially trout, carp, crabs, &c.; numerous flocks of sheep, and herds of horned cattle, good horses, and poultry of all sorts, abound here, as well as silk-worms and bees. It has a large nursery, a royal dépôt of standard measures at Blois, iron-mines, quarries of alabaster, freestone, flint (supplying all France with gun-flints), marble, potter's earth, and turf. The inhabitants carry on the manufacture of coarse woollen clothes, cotton, fringes, cotton counterpanes, woollen caps, leather gloves, and cutlery. They have also refining houses for sugar, procured from beet-root, spinning mills for woollen and cotton yarn, worked by water, tan-yards, glass-houses, deftories, forges, &c.; and trade in grain, wines, Orleans brandy, vinegar, wood for building and for fuel, cattle, iron, flint stones, &c. The principal rivers which water this department are the Loire and the Cher, which are navigable in this part of their course; the Loir; the Beuvron; the Cosson; and the Sauldre; it is crossed by the great roads of Tours, Châteaudun, and Orleans.

LOIRE, one of the principal rivers of France for the length of its course, rises in Mount Gerbier-le-Joux, near the village of Sainte Eulalie, in the department of Ardeche, watering a vast plain of more than 600 miles, and dividing France almost into two equal parts. It establishes a communication between the Atlantic Ocean and the Mediterranean Sea, by means of the central canal, and facilitates the commercial operations of a great number of cities in the kingdom. At first this majestic river is closely shut up between the romantic mountains of the Vivarais, then crossing Velay, Forez, Berry, and Nivernais, it directs its course a little from the south-east to the north-west, as far as Orleans: below that city it flows directly westward through the middle of a fertile vale, bordered with woody elevations, and hills planted with vines, at the foot of which are extensive and beautiful plains. Numerous hamlets, villages, towns, cities, and chateaus, adorn its banks, while the multitude of boats that skim over its waters contribute to give life to this charming country. Standing on the bridge at Blois, and looking towards its source, the most magnificent prospect presents itself of hills and woods, towns, villages, country houses, and insulated towers, in a vast amphitheatre of nearly twenty miles.

The Loire presents no uniform or clear channel for navigation; the shifting of the sands, from one side to the other, constantly varies the course that the boats must pursue. It has been found necessary, therefore, to construct dikes in some parts, both for the purpose of collecting its waters in the dry season, and confining them in times of great increase. These embankments are generally about twenty feet high, and twenty-four feet broad at the top; in parts where they are most exposed to the shock of the waters, they are capped with masonry. The middle of this causeway is also paved almost through its whole length, and presents one of the finest roads in the world, bordered with rows of poplars. This river begins to be passable for rafts, carrying fir trees for boat-building at Retournac, in the department of the Upper Loire; it is then navigable for other vessels from La Noire, in the department of the Loire, to Roanne, where the greater part of the merchandise of Lyons, Languedoc, Provence, and Dauphiny, is embarked. The chief of these are grain, wines, brandy and other spirits, liqueurs, oils, southern fruits, colonial commodities, salt, wool, hemp, forged and cast iron, small copper vessels, pit-coal, wood for ship-building, ropes, resin, tar, &c. The mean height of water varies from 1 metre 95 centimes, to 2 metres 90 centimes, and their fall is about 1 metre in every 200. A sort of boats has lately been established on the Loire, called flies, which regularly proceed from Nantes to Orleans, completing the voyage in about a fortnight.

After passing by Nevers, Chatillon, Chateaufort, Orleans, Blois, Tours, Saumur, Nantes, and many other considerable places, the Loire falls into the ocean just below St. Nazaire; its course being about 660 miles, and receiving the waters of the Arroux, the Behre, the Arnon, the Nièvre, the Allier, the Cher, the Indre, the Vienne, the Thouet, the Authion, the Mayenne, the Sevre-

Nantaise, the Erdre, the Acheneau, and many other smaller tributary streams. Its mouth is in a very bad state, occasioned by the formation of a sand-bank about a mile and a half from the anchorage, where the water is not more than seven or eight feet deep at low tide, while formerly it was more than twenty.

LOIRE, THE, a department of France, is formed out of the Forey, a dependency of the former province of Lyonnais, and takes its name from the above river, which crosses it from south to north. The chief place of this prefecture is Montbrison: it has three arrondissements, Montbrison, containing 114,607 inhabitants; Roanne 107,808; and St. Etienne 121,139; being a total population of 343,554 souls, on an area of 732 square miles, and yielding a revenue of 14,368,000 francs. It is situated in the nineteenth military division, has twenty-eight cantons, and 327 communes, a royal court and a bishop's see at Lyons, is divided into three electoral arrondissements, and sends five members to the chamber of deputies. This department is bounded on the north by that of the Saone et Loire; on the east by that of the Rhone; on the south by those of Ardeche and the Upper Loire; and on the west by those of Puy de Dôme and the Allier.

It consists of beautiful and fertile plains on both banks of the Loire, and lofty mountains, which surround it on the north, south, and west; the soil is for the most part poor and stony. On these mountains, the highest point of which is Mount Pilat, are to be found some excellent pastures, feeding a great number of cattle, and excellent cheeses are made in these places; some of them are cultivated to a certain height, others are covered with vines, producing wines of good quality; and abundance of chestnut trees, the fruit of which is sold at Paris under the name of Lyons chestnuts. This rocky soil is cultivated mostly with horses and mules, but the produce is far from sufficient for its inhabitants; the country contains about 36,386 hectares of forests, chiefly of oaks, beech, and fir; and 13,000 hectares of vineyards, each hectare of arable land yielding on an average twenty-four francs ninety centimes. The productions consist of all kinds of grain, excellent potatoes, fine chestnuts, good fruits, a quantity of hemp, dyers' weed, madder, saffron, every sort of mountain plants, wine, and wood. It abounds in roe-bucks, hares, thrushes, and aquatic birds; pools full of fish; mules, horses, horned cattle, sheep (famous for the delicacy of their meat), and great numbers of goats, and poultry. This department also contains mines of iron, lead, natural steel, and black emery, besides quarries of marble, granite, porphyry, whetstones, gun-flints, &c. At St. Alban, and Sail-en-Cousan, are some fine mineral springs. The inhabitants have considerable manufactories of arms of all kinds, ironmongery, hempen cloths, calicoes, cambrics, coarse cloths, lace, silk, ribands and shoe-laces, haberdashery, crapes, glue, lamp-black, cast and wrought iron, files, saw-blades, locks, fencing foils, knives, and nails. There are also many cotton spinning manufactories, paper-mills, numerous and large glass-houses, silk-mills, iron works, lime, plaster,

brick and tile kilns, dye-houses, tan-yards, and factories for the preparation of chamois leather. There is likewise a royal manufactory of arms. Their trade consists in coal, iron and iron wares, arms, nails, leather, paper, silk, ribands, wood for boat-building, chestnuts, and the famous cheeses called *La Roche* cheeses.

The principal rivers are the Loire, which is here navigable, the Lignon, the Ysable, the Aax, the Semene, the Coise, the Faran, and the Gier; and this department is crossed by the great roads of Lyons, Clermont, and Moulins.

LOIRE, UPPER, a department of France, comprising the Velay and that part of the Cevennes dependent on the former province of Languedoc, derives its name from its situation with regard to the river Loire, which flows through it from the south to the north-east. The principal place of this prefecture is Le Puy; it contains three arrondissements, Le Puy, with 122,717 inhabitants; Briouda 78,227; and Yssengeaux 75,677; constituting a total population of 276,621 souls, on an area of 2196 square miles; twenty-eight cantons, and 272 communes. It yields a revenue of 10,400,000 francs, is in the nineteenth military division, has a royal court at Riom, and a bishop's see at St. Flour: it is divided into two electoral arrondissements, and sends three members to the chamber of deputies. It is bounded on the north by the departments of the Loire and the Puy de Dome; on the east by that of Ardèche; on the south by that of Lozère; and on the west by that of Cantal.

This department is entirely covered with basaltic mountains, the tops of which are covered with snow during more than six months of the year, and on the sides of them are extensive forests, enclosing excellent pastures, which feed a great number of cattle, and mules. Some of the smaller hills are covered with chestnut trees and vines, cultivated with great care. In the valleys are found plains of small extent, and yet more fertile than might be expected from their wild situation; they yield abundance of excellent fruit for the Paris market, and a quantity of good corn. The soil is naturally very fertile, especially in the valleys and on the hills: it is almost every where of the same quality, consisting of volcanic earth, lava, and pumice-stone of all kinds. In the mountains are to be perceived the remains of ancient volcanoes; streams of lava and strange collections of basaltic columns cover their sides, and extend to their feet, presenting a most singular spectacle. The soil, being rocky, is cultivated with mules, and yields a full supply for its inhabitants; there are 36,386 hectares of forest land, and 13,000 of vineyards: the mean produce of each hectare of arable land is eighteen francs fifty-nine centimes.

Here are mines of antimony and pit-coal, and quarries of statuary marble, granite, mill-stones, freestone, plaster, and gray stone. The manufactures consist of black and white lace, thread, silk, blond, ribands, woollen counterpanes, common stuffs, nails, organzine silk, and fullers' earth. They have also considerable dye-houses, tan-yards, paper-mills, sand-pits, lime-kilns, &c. An extensive trade is carried on in grain, vegetables, mules, cattle, lace, leather, and paper. This

country is watered by the Allier, which is navigable, the Loire, the Ance, the Auzon, the Alagnon, and the Arcueil.

LOIRE-INFÉRIEURE, a department of France, is formed of part of the former province of Upper Bretagne, and takes its name from the natural course of the Loire, which crosses it from east to west, and here empties itself into the ocean. The principal place of this prefecture is Nantes: it is divided into five arrondissements, Nantes, containing 187,435 inhabitants; Ancenis 45,234; Chateau Briant 57,237; Paimbœuf 39,394; and Savenay 104,515: being a total population of 433,815 souls, on a superficial extent of 3168 miles: it has forty-five cantons and 209 communes, yielding a revenue of 18,904,000 francs: it is in the twelfth military division, has a royal court at Rennes and a bishopric at Nantes, and consists of four electoral arrondissements, which send six members to the chamber of deputies. Its boundaries are, the department of Morbihan to the north-west; that of Ille-et-Vilaine to the north; that of Maine-et-Loire to the east; that of La Vendée to the south; and the ocean to the west.

The territory of this maritime department is intersected by an incredible number of rivers, several of which are navigable. It has a coast of sixty miles in extent, which the inroads of the sea are continually increasing in some parts. The soil, generally level, presents a multitude of delightful situations and various scenery, and produces grain of all kinds; the pasturage is excellent, and furnishes feeding for great numbers of cattle and horses; extensive forests, heaths, marshes, meadows planted with fruit trees, and rich vineyards spread over the surface of this country. The salt marshes, which stretch along the coast, are very productive and of considerable importance to the inhabitants. In the southern part is the lake Grand Lieu, one of the largest in France, and abounding in fish; there is also another formed by the Erdre, which for nearly twenty miles widens into a stream between seven and eight miles broad; this lake is very beautiful, being surrounded by verdant hills, planted with chestnut trees and peopled with villages and country houses. This country is cultivated with the aid of horses, and yields a sufficiency for its inhabitants, containing 37,452 hectares of forest land, chiefly oaks, beech, and birch, and 45,000 hectares of vineyards, producing on an average twenty-nine francs eighty-nine centimes per hectare of arable land. There are mines of iron, antimony, pewter, loadstone, and fine coal; and quarries of marble, granite, freestone, quartz, potter's clay and turf. The manufactures consist of common stuffs, linen and cotton cloth, handkerchiefs, printed calicoes, flannels, stockings, porcelain, delf and earthenware, pipes, iron, cast metals, sugar baking, vinegar, liqueurs, mineral acids, lamp-black, leather, morocco, ropes, paper, glass, tanning, brass founding, cotton spinning, sugar refining, salt making, forging, blast furnaces, nail making, a royal foundry for cannon and ship building both for merchants and the state. The trade lies chiefly in grain, faggots, wool, cattle, wines, brandy, sugar, honey, building wood, iron, salt,

dry and salted fish, spices, drugs, colonial produce, exports and imports to and from the principal states of Europe, Africa and the Indies, fishing tackle for the cod fishery in Newfoundland and Cape Breton, and the herring, mackerel, and pilchard fishery. It also largely supplies the navy with provisions and ammunition. The principal rivers of the department are the Loire, the Sevre Nantaise, the Acheneau, the Boulogne, the Brive, the Don, the Isac, the Erdre, the Ognon, and the Tenu navigable; the Vilaine, the Logue, the Cher and the Maine: it is crossed by the great roads of Rochelle, Vannes, Rennes, and Angers.

LOIRET, THE, a department of France, consists of part of the former province of Orleanais, and takes its name from the little river Loiret, which rises here, and falls into the Loire below Orleans. This town is the chief place of the prefecture, which is divided into four arrondissements: Orleans, containing 133,006 inhabitants; Gien 38,550; Montargis 61,942; and Pithwiers 57,896; being a total population of 291,394 souls, on an extent of 2016 square miles; thirty-one cantons and 363 communes. This department yields a territorial revenue of 17,516,000 francs, is in the first military division, has a royal court and bishopric at Orleans, contains three electoral arrondissements, which send five members to the chamber of deputies. It is bounded on the north by the departments of Seine-et-Oise and Seine-et-Marne; on the east by that of the Gonne, on the south by those of the Cher and the Loir-et-Cher, and on the west by that of the Eure-et-Loir.

This is generally a level country, composed of fertile plains, vast forests, hills covered with vines, beautiful meadows and numerous pastures. That part, which extends along the right bank of the Loire from Orleans to Briare, and for a great distance inland, presents nothing but a sterile and sandy soil; the hills, however, are covered with vines, which yield excellent red and white wines. Great numbers of cattle also, and abundance of poultry, especially turkeys, are reared here for the supply of the capital. The climate is temperate and healthy; the soil, which is mostly fat and rich, is cultivated with horses and yields more than sufficient for its inhabitants; there are 95,700 hectares of forests, and 39,000 of vineyards, each hectare of arable land producing twenty-four francs twelve centimes. The productions of this department are all sorts of wheat, barley, buck-wheat, maize, millet, dry vegetables, hemp, flax, fine saffron, good fruits of every kind, pasturage for cattle, wood, abundance of game, river fish, numerous herds of cattle and flocks of sheep, poultry, and bees. There is a botanical garden at Orleans; mines of antimony and quarries of stone for building, marl and potter's earth. Mineral springs are found in different communes, and establishments of mineral waters at Segay and Beaugency.

Considerable manufactures are carried on by the inhabitants, in woollen counterpanes, cloth, serge, caps, paper, parchment, leather, files, shot, brass pots, pipes, and highly esteemed vinegar. They have likewise sugar-refining houses, brandy distilleries, wax-bleaching houses,

cotton and wool spinning mills, brass foundries and famous tan-yards. Their trade consists in faggots, corn, wine, vinegar, brandy, spices, drugs, fruits and fruit trees, vegetables, chestnuts, cyder, excellent honey, saffron, salt, wool, wood, charcoal, cattle, &c. The principal rivers of this department are the Loire and the Loiret, navigable; the canals of Briare and Orleans, the Loing, the Bied, the Ouanne, the Essonnes and the Cosson; and the chief roads are those of Paris, Malon, Bourges, and Tours.

LOIRET, THE, a small river, which rises from a very deep spring at the chateau de la Source, about a league below the bridge of Olivet, in the department to which it gives its name; and, after running a course of scarcely nine miles, falls into the Loire below St. Mesmin. It is navigable from the mills of la Chausse Inferieure to its mouth, and possesses the singular property of never being frozen over, however intense the cold. Many factories are established on its banks, and in time of frost it serves for a receptacle to the Orleans boats, which run up for shelter as far as St. Mesmin.

LOITER, *v. n.* } Belg. *leuteron*; Goth. *la-*
LOITERER, *n. s.* } *tur.* To delay; linger; idle time away.

Ever listless *loiterers*, that attend

No cause, no trust, no duty, and no friend.

Pope.

What folly can be ranker? like our shadows,
Our wishes lengthen as our sun declines,
No wish should *loiter*, then, this side the grave.

Young.

LOIZEROLLES (M. de) was a barrister at the time of the revolution, and was arrested, with his father, in 1793, on suspicion, and conveyed with him to the prison of St. Lazare. On the 7th of Thermidor, two days before the fall of Robespierre, the messengers of the revolutionary tribunal arrived at the prison with a list of the prisoners who were to be tried, and called for Loizerolles, the son. The young man was asleep, but the father, with a heroic wish to sacrifice his life for the preservation of his son, allowed himself to be taken to the Conciergerie, and appeared before the judges. The clerk, perceiving the error in point of age, substituted the name of Francis for John, the word father for son, and the age of sixty-one for twenty-two, and thus the father was led to the scaffold, though no charge or crime was alleged against him! M. Loizerolles, junior, has since celebrated this act of paternal affection in a poem, in three cantos, with historical notes (18mo., 1813).

LOKE, in mythology, a deity of the northern nations, answering to the Arimanius among the Persians, whom they represent as at enmity both with gods and men, and the author of all the evils which desolate the universe. Loke is described in the Edda as producing the great serpent which encircles the world; which seems to have been intended as an emblem of corruption or sin; he also gives birth to Hela or death, the queen of the infernal regions; and to the wolf Fenris, who is to encounter the gods and destroy the world.

LOKEREN, a large town of the kingdom of the Netherlands, in East Flanders, on the

Durme, a small river from which is a canal uniting it with the Scheldt. It carries on a good trade in corn, hemp, flax, and linen. The manufactures are woollens, lace, cotton, hats, and tobacco works: it has also fifteen oil mills. Population 12,800; twelve miles north-east of Ghent.

LOKMAN, surnamed the Wise, an eminent philosopher among the Easterns. The Arabians say he was the son of Baura, the son or grandson of a sister of Job. He was an Ethiopian, and a slave for some time. It is said that he was born in the time of David, and lived till the age of the prophet Jonas, a period of about 240 years. Some suppose him to have been the same with Æsop the mythologist: and indeed his Parables or Apologues in Arabic, as well as many particulars in his life, resemble the fables and fortune of Æsop. He is said, like Æsop, to have been deformed in his person, and some of his pieces are still extant; Mahomet entitled a chapter of the Koran after his name, in which he introduces God as saying, 'We heretofore bestowed wisdom on Lokman.' He obtained his liberty on account of his obedience in eating the whole of a bitter melon, at his master's command. His master, surprised, asked how it was possible for him to eat such a nauseous fruit? He answered, 'I have received so many favors from you, that it is no wonder I should once in my life eat a bitter melon from your hand.' M. Galland translated all the fables of Lokman, and Bidpai or Pilpay, a brahmin philosopher, which were published at Paris in 1724. Erpenius published his fables and grammar in Arabic and Latin, at Leyden, in 1636.

LOLIUM, darnel grass, in botany, a genus of the digynia order, and triandria class of plants, natural order fourth, gramina: CAL. monophyllous, fixed, and uniliferous.

L. perenne, red darnel, or rye-grass, is very common in roads and dry pastures, and makes excellent hay upon dry, chalky, or sandy soils. It is advantageously cultivated along with clover, and springs earlier than other grasses; thereby supplying food for cattle at a time when it is most difficult to be obtained. Cows, horses, and sheep eat it; goats are not fond of it.

L. temulentum, or white darnel, grows spontaneously in ploughed fields. If the seeds of this species are malted with barley, the ale soon occasions drunkenness; mixed with bread corn, they produce but little effect unless the bread is eaten hot.

LOLL, *v.n. & v.a.* Belg. *luylegin*, *luy*, idle, and *ligen*, to lie; Belg. *lullen*; Teut. *loellen* is to suck with the tongue.—Thomson. To lie idle upon or against; recline lazily: to hang or put out the tongue.

So hangs, and *loll*, and weeps upon me: so shakes and pulls me. *Shakespeare. Othello.*

He is not *lolling* on a lewd love bed,
But on his knees at meditation.

Id. Richard III.

Close by a softly murmuring stream,
Where lovers used to *loll* and dream.

Hudibras.

To *loll* on couches, rich with cytron steds,
And lay your guilty limbs in Tyrian beds.

Druden.

With harmless play amidst the bowls he passed,
And with his *lolling* tongue assayed the taste. *Id.*

By Strymon's freezing streams he sat alone,
Trees bent their heads to hear him sing his wrongs,
Fierce tygers couched around, and *loll'd* their fawn-
ing tongues. *Id. Virgil.*

A lazy, *lolling* sort
Of ever listless loiterers. *Dunciad.*

'Tis done—he steps into the welcome chaise,
Lolls at his ease behind four handsome bays,
That whirl away from business and debate
The disencumbered Atlas of the state. *Cowper.*

LOLLARD (Walter), founder of the sect of the Lollards, is said to have been an Englishman. He first introduced his doctrines in Germany, about A.D. 1315. After preaching with great zeal, and gaining many proselytes on the continent, he returned to England, where his disciples were called Lollards. He and his followers rejected the sacrifice of the mass, extreme unction, and penances for sin; insisting that Christ's sufferings were sufficient. He is likewise said to have set aside baptism as a thing of no effect; and repentance, as not absolutely necessary. But, in that age, none who had the courage to oppose the errors of the church of Rome escaped slander or persecution. Lollard sealed his testimony with his blood, being burnt alive in Cologne in 1322.

LOLLARDS, in ecclesiastical history, a religious sect, which arose in Germany about the beginning of the fourteenth century; so called from W. Lollard, their founder. See the last article. Some derive the name from *loli*um, a tare, as if the Lollards were tares in God's vineyard: others derive *lollhard*, *lullhard*, *lollert*, or *lullert*, from the old German word *lullen*, *lollen*, or *lallen*, 'to sing with a low voice;' and say, Lollard means a singer, or one who is continually praising God with a song. The Alexians or Cellites were called Lollards, because they were public singers who interred those who died of the plague, and sang a dirge in a mournful tone as they carried them to the grave. The name was afterwards assumed by persons who, though they made many pretences to piety, entertained the most ridiculous opinions, and committed the most enormous vices. And many injurious aspersions were propagated against those who assumed this name by the priests and monks; so that, by degrees, any person who covered heresies or crimes under the appearance of piety, was called a Lollard. Thus the name was formerly common to all persons and sects who were supposed to be guilty of impiety against God or the church, under profession of extraordinary piety. However, many societies of Lollards, of both sexes, were formed in most parts of Germany and Flanders, and were supported partly by their manual labors, and partly by charitable donations. The magistrates and inhabitants of the towns where they resided favored and protected them, on account of their usefulness to the sick. They were thus supported against their malignant rivals, and obtained many papal constitutions, by which their institute was confirmed, their persons exempted from the cognisance of the inquisitors, and subjected entirely to the jurisdiction of the bishops; but, as these measures

were insufficient to secure them from molestation, Charles, duke of Burgundy, in 1472, obtained a solemn bull from pope Sixtus IV., ordering that the Cellites or Lollards should be ranked among the religious orders, and delivered from the jurisdiction of the bishops; and pope Julius II. granted them yet greater privileges in 1506. In England, the followers of Wickliffe were called, by way of reproach, Lollards, from some affinity between their tenets. They were solemnly condemned by the archbishop of Canterbury and the council of Oxford.

LOMBARD (Lambert), an eminent painter, born at Liege in 1500; who, after a diligent study of the antique at Rome, introduced that style of painting among his countrymen instead of the Gothic. He painted historical and architectural pieces; and, though he could never altogether free himself from his national taste, he is ranked among the best painters of his time. He died in 1560.

LOMBARD (Peter), well known by the title of Master of the Sentences, was born at Novara in Lombardy; but, being educated in Paris, he distinguished himself so much at that university, that he was first appointed canon of Chartres; afterwards tutor to Philip, son of Louis VI., and lastly bishop of Paris. He died in 1064. His work on the Sentences is looked on as the source of the scholastic theology of the Latin church. He wrote also Commentaries on the Psalms, and on St. Paul's Epistles.

LOMBARDO-VENETIAN KINGDOM, a name given in 1815, at the congress of Vienna, to Austrian Italy, comprising both Lombardy and the former Venetian territory. See ITALY.

LOMBARDS, a nation of Scandinavia, who formerly settled in Italy, and for some time made a considerable figure. The name of Lombards, or Longobards, is derived by Paulus Diaconus, their historian, who was himself a Lombard, from the length of their beards. A nation, called Lombards, is mentioned by Tacitus, Strabo, and Ptolemy; but these are different from the Lombards who afterwards settled in Italy, and are reckoned to be the same with the Gepidæ, whom the Italian Lombards almost exterminated. The Lombards who settled in Italy are first mentioned by Prosper Aquitanus, bishop of Rhegium, in 379, who tells us, that about this time the Lombards, abandoning the most distant coasts of the ocean, and their native country Scandinavia, and seeking for new settlements, as they were overstocked with people at home, first attacked and overcame the Vandals in Germany. They were then headed by two chiefs, Iboreus and Aion; who, dying about A. D. 389, were succeeded by Agilmund.

The Lombards were at first a cruel and barbarous nation; but their native fierceness gradually wore off, after they had embraced the Christian religion; and they governed with such equity and moderation, that most other nations envied the happiness of those who lived under them. Under their government, says Paulus Diaconus, no violence was committed, no one unjustly dispossessed of his property, none oppressed with taxes; theft, robberies, murder, and adultery, were seldom heard of; every one

went, without apprehension, wherever he pleased. Their laws were so just and equitable, that they were retained in Italy, and observed there some ages after their kingdom was at an end. Their dress was loose, and for the most part of linen, such as the Anglo-Saxons wore, being interwoven with various colors; their shoes were open to the end of their foot, and they used to button or lace them. From some ancient paintings, it appears, that they shaved the back part of their heads, but that their hair was long before; their locks being parted, and laid on each side their foreheads.

Agilmund is commonly reckoned the first king of the Lombards. Before the time of Odoacer the history of the Lombards affords nothing remarkable; in his time, however, they settled on the Danube, in the country of the Rugians, whom Odoacer had either exterminated or carried into captivity. During their stay in this country they rendered themselves formidable to the neighbouring nations, and carried on successful wars with the Heruli and Gepidæ. In 526 they were allowed by the emperor Justinian to settle in Pannonia; and here they made war a second time with the Gepidæ. Alboinus, the Lombard king, killed the king of the Gepidæ with his own hand, put his army to the rout, and cut such numbers of them in pieces, that they ceased from that time to be a nation. Having caused the deceased king's head to be cut off, he made a cup of his skull, which he used in all public entertainments. However, having taken, among many other captives of great distinction, Rosamunda, the late king's daughter, he married her after the death of his former wife Clodisvinta, the daughter of Clotaire king of France. By this victory Alboinus gained such reputation, that his friendship was courted by Justinian; and, in consequence of the emperor's application, 6000 Lombards were sent to the assistance of Narses against the Goths. The success of the Romans in this expedition, the invasion of Italy by the Lombards, and their successes, have been related under ITALY. At last Alboinus having made himself master of Venetia, Liguria, Æmilia, Etruria, and Umbria, was murdered in the year 575, the fourth of his reign, by the treachery of his wife, whom he had irritated to the most implacable vengeance, by ordering her, one day, at a feast at Verona, to drink merrily with her father, presenting her with the cup above-mentioned. This she accomplished by the assistance of Helmi-child, the king's shield-bearer, who at first peremptorily refused to engage in the treason; but Rosamunda having, by placing herself in his mistress's bed, drawn him into an adulterous connexion with herself, told him he must now either kill Alboinus, or be himself put to death; promising at the same time to marry him, if he accomplished it, and bestow on him the kingdom. This last part of her promise, however, she did not get fulfilled, as they were obliged to save themselves by flight. They fled to Longinus the exarch of Ravenna, taking with them all the jewels and treasure of the late king. Longinus receiving her with the greatest kindness, assured her of his protection; and, judging this a favorable opportunity of making himself king of Italy, proposed to marry her, provided she dis-

patched Helmichild. Rosamund, pleased with the proposal, resolved to satisfy her ambition by getting rid of the man she had married to gratify her revenge. Accordingly, having prepared a strong poison, she mixed it with wine, and gave it to her husband as he came out of the bath; but he had not half emptied the cup, when, from its sudden effects, he concluded what it was, and compelled her to drink the rest. They both died in a few hours. Longinus, on her death, laid aside thoughts of making himself king of Italy, and sent the king's treasure to Constantinople, together with Alboinda, the daughter of Alboinus by Rosamund, whom she had brought along with her. After the death of Alboinus the Lombards chose Clephis, one of the nobility, for their king. He was murdered after a short reign of eighteen months; upon which ensued an interregnum of ten years. During this time they extended their conquests in that country; but, at last, the Romans, jealous of their progress, resolved to put a stop to their victories, and, if possible, to drive them quite out. For this purpose they entered into an alliance with the Franks; which so alarmed the Lombards, that they re-established the monarchical form of government among themselves, and chose Autharis, the son of Clephis, for their king. This monarch, considering that the power of the dukes, who had governed Lombardy for ten years, was very much established, allowed them to continue in their government; but obliged them to contribute a moiety of their revenues towards the support of his royal dignity, and take an oath that, in the time of war, they would assist him to the utmost of their power. Having thus settled matters with the dukes, he enacted several wholesome laws against theft, rapine, murder, adultery, &c., and was the first Lombard king who embraced Christianity. Most of his subjects followed his example, but, being instructed by Arian bishops, disputes continued long between them and the orthodox bishops of the cities subject to them. From the re-establishment of the monarchy under Autharis, to the reign of Rotharis in 636, the history of the Lombards affords nothing memorable. This period is remarkable for the introduction of written laws among these people. Before this time they had been governed only by tradition; but Rotharis, in imitation of the Romans and Goths, undertook the publishing of written laws; and, to those which he enacted, many were added by succeeding princes. These laws were enacted in public assemblies, convened for that purpose, after they had been examined and approved of by all the lords of the kingdom; the legislative power being lodged in the king and nobles alone. Rotharis also carried on successful wars with the exarch of Ravenna, whom he totally defeated in several engagements, and made himself master of part of his territories. He died in 652; and the affairs of the Lombards went on prosperously, till the ambition of Luitprand laid the foundation of the total ruin of his kingdom. He ascended the throne in 711, and watched all opportunities of enlarging his dominions at the expense of the emperors. In 726, the emperor Leo III. having forbidden the worship of images, and ordered them to be pulled

down, the people revolted. And having strictly enjoined his officers in the west, especially the exarch of Ravenna, to see his edict punctually obeyed, Scholasticus, then exarch, began to pull down the images in Ravenna; which incensed the superstitious multitude to such a degree, that, taking arms, they openly declared they would rather renounce their allegiance to the emperor than the worship of images. Luitprand seized this opportunity of making himself master of the seat of the exarch; having drawn together all his forces, he unexpectedly appeared before Ravenna, and closely besieged it. But the exarch defended the place with such courage, that Luitprand broke up the siege, and led his army against Classis, which he took, plundered, and levelled with the ground. The severe treatment the inhabitants met with, threw the citizens of Ravenna into the utmost consternation; which Luitprand resolved to take advantage of, and, returning before Ravenna with his whole army, by frequent attacks tired the inhabitants and garrison to such a degree, that the exarch, despairing of relief, privately withdrew. Luitprand, having carried the town by storm, gave it up to be plundered by his soldiers, who found in it an immense booty, as it had been long the seat of the emperors, the Gothic kings, and the exarchs. The reduction of Ravenna was followed by the surrender of several cities of the exarchate, which Luitprand reduced to a dukedom; appointing Hildebrand, his grandson, to govern it with the title of duke, and, as he was yet an infant, appointing Peredeus, duke of Vicenza, for his guardian. The conquest of the greater part of the exarchate alarmed Gregory II. though he was then at variance with the emperor, whose edict against the worshipping of images he had opposed. But, jealous of the power of the Lombards, he exerted his influence with Urfus, doge of Venice, who resolved to assist the exarch with the whole force of the republic. The exarch accordingly laid siege to Ravenna by land, while they invested it almost at the same instant by sea. Peredeus defended the town for some time with great courage and resolution; but the Venetians, having forced open one of the gates, the city was taken, and Peredeus slain, while attempting to drive the enemy from the posts they had seized. Hildebrand fell into the hands of the Venetians; who, having thus recovered Ravenna to the emperor, returned home, leaving the exarch in possession of the city. Luitprand was then at Pavia; but the town was taken before he was able to assemble his troops for its relief. Gregory, persuading himself that the emperor would now, out of gratitude for the recovery of Ravenna, give ear to his admonitions, began to solicit him with the most pressing letters to revoke his edict against the worship of images; but Leo, instead of complying, sent three officers to Rome, with private orders either to assassinate the pope, or send him prisoner to Constantinople: and in 725 he recalled Scholasticus, and sent Paul, a patrician, into Italy, to govern in his room, with private instructions to encourage the above-mentioned officers. But, in the mean time, the plot was discovered, and two of the conspirators were

apprehended by the citizens of Rome, and put to death; the third having escaped. Hereupon the exarch drew together a considerable body of troops, and set out on his march to Rome, with a design to seize the pope, and send him in chains to Constantinople. But the politic Luitprand now leagued with Gregory against the exarch, in order to preserve the balance of power between them, and, by assisting sometimes the one and sometimes the other, weaken both. The consequence of this coalition was, that, the superstition of the people being awakened, almost the whole of Italy revolted from the emperor. Meantime the exarch Paul, having gained a considerable party in Ravenna, began to remove the images out of the churches. Hereupon the adverse party, encouraged by the pope, flew to arms; and, falling upon the Iconoclasts, gave rise to a civil war within the walls of Ravenna. Great numbers were killed on both sides; but, the worshippers of images prevailing, a dreadful slaughter was made of the opposite party, and the exarch himself was murdered. However, Ravenna continued faithful to the emperor; but most of the cities of Romagna, belonging to the exarchate, and all those of Pentapolis, abhorring the emperor as a heretic, submitted to Luitprand. In Naples, Exhilaratus, the duke, having received orders from Leo to execute his edict, endeavoured to persuade the people to receive it; but, finding all his endeavours thwarted by the pope, for whom the Neapolitans had a great veneration, he hired assassins to murder him. But, the plot being discovered, the Neapolitans murdered both the duke and his son, with one of his chief officers. They still, however, continued steadfast in their allegiance to Leo, who sent one Peter to govern them in the room of Exhilaratus. In the mean time Leo, not doubting but the pope was the chief author of so much mischief, sent the eunuch Eutychius into Italy, with the title and authority of exarch, strictly enjoining him to get the pope despatched, as his death was absolutely necessary for the tranquillity of Italy. But a messenger, whom the exarch had sent to Rome, being apprehended, and the emperor's order being found upon him, the pope's friends thenceforth guarded him with such care, that the exarch's assassins could never afterwards find an opportunity. The Romans were for putting the messenger to death; but the pope interposed, contenting himself with excommunicating the exarch. And now the Romans, provoked more than ever against Leo, resolved to revolt, and appoint their own magistrates, keeping themselves united under the pope, not yet as their prince, but only as their head. Eutychius, having brought with him from Constantinople a good number of troops, easily quelled the rebellion at Ravenna, and severely punished the authors. But he found he could never reduce them, so long as they were supported by the Lombards: and therefore he employed all his art and policy to take off Luitprand from the party of the Romans, and bring him over to his own. Luitprand, for some time, withstood all his offers; but Thrasimund, duke of Spoleto, revolting at this juncture, the exarch offered to assist the king against the rebellious

duke, provided he would assist him against the pope and the Romans. With this proposal Luitprand readily closed; and the two armies joined, and began their march towards Spoleto. At their approach, the duke, despairing of being able to resist two such powers, sued for pardon; which Luitprand not only granted, but confirmed him in the dukedom, after he had obliged him to take a new oath of allegiance, and give hostages for his future fidelity. From Spoleto the two armies marched to Rome; and encamped in the meadows of Nero, between the Tiber and the Vatican. Gregory had caused the city to be fortified; but, being sensible that the Romans alone could not long hold out against two such armies, he went to the king in his camp; and there, with a pathetic speech, softened Luitprand to such a degree, that, throwing himself at his feet in presence of the army, he begged pardon for entering into an alliance against him; went with him to the church of St. Peter, and laid his girdle, sword, gauntlet, royal mantle, crown of gold, and cross of silver, on the apostle's sepulchre. After this he reconciled the pope with the exarch, who was thereupon received into the city, where he continued for some time, in a friendly correspondence with the pope. At this time an impostor, taking the name of Tiberius, and pretending to be descended from the emperors, seduced many people in Tuscany, and was by them proclaimed emperor. Gregory, wishing to oblige Leo, persuaded the Romans to attend the exarch in his expedition against this usurper, whom they soon took in a castle, sent his head to the emperor, and suppressed the rebellion. But Leo, still insisting upon his edict against the images being received in Rome, the Romans, at the instigation of the pope, publicly renounced their allegiance, paid him no more tribute, and withdrew for ever their obedience to the eastern emperors. On this Leo caused all the patrimonies of the church in Sicily, Calabria, and his other dominions, to be confiscated; and raised a powerful army to recover the towns that had revolted. Gregory, alarmed at these warlike preparations, resolved to recur to the protection of the French, the only nation then capable of coping with the emperor, and on whom, on account of their zeal for religion, he thought he might depend. They were, at this time, governed by the celebrated Charles Martel, who was reckoned the greatest hero of his age. To him, therefore, Gregory sent a solemn embassy, with a great number of relics, earnestly entreating him to take the Romans, and the church, under his protection, and defend them against the attempts of Leo. The ambassadors were received with extraordinary marks of honor; and a treaty was soon concluded between them and Charles. But Gregory did not long enjoy the fruit of this negotiation; for he died the same year, 731, and was succeeded by Gregory III. The French nation, by the bravery and conduct of Charles Martel, had now become the most powerful kingdom in the west. His successor, Pepin, was no less wise and powerful than his father; and, as the ambition of the Lombard princes would be satisfied with nothing less than the entire conquest of Italy, the French monarch, Charlemagne,

under color of assisting the pope, at last put an end to the empire of Lombardy, as related under the article FRANCE.

LOMBARDY, a country of Upper Italy, is a name commonly given to the whole tract of country between the Alps and the Appennines, or between the frontiers of Switzerland and Tuscany. It is more strictly applicable to the vale of the Po only. In the more general acceptation it is about 250 miles in length, and 150 in breadth, and corresponds pretty nearly to the Gallia Cisalpina of the Romans. It derived its present name from the Lombards of the sixth century, who occupied it as a kingdom till the eighth. Lombardy is divided into Upper and Lower: the former, the western part, comprehending the Milanese, and a portion of the Sardinian territory; the latter, Parma, Modena, the papal legislation, and great part of the Austrian government of Venice. It is also divided into Cispadan, and Transpadan Lombardy: the former, or Lombardy on this side the Po, including all the territory between that river and the Appennines; Transpadan Lombardy, or Lombardy beyond the Po, all that is between that river and the Alps. The states of Lombardy at present are Austrian Italy, Sardinia, Parma, Modena, and Lucca.

LOMBLEM, one of the Sunda Islands, between the larger islands of Floris and Timor, and the eighth and ninth degrees of south latitude. It is itself about fifty miles in length, by sixteen average breadth; but has never been explored.

LOMBOCK, an island in the eastern seas, separated from that of Bally by the straits of Lombock, and from Sumbawa by the straits of Allas. It is about fifty-three miles in length, north and south, and forty-five in average breadth, very mountainous, but covered with wood and verdure. At the town of Bally, in the Straits of Allas, and in the many flourishing plantations and villages of the coast, European ships passing to the east are well supplied. The articles required in exchange are fire-arms, ammunition, or dollars. Its commerce with the neighbouring Malay Islands is also extensive. The inhabitants are supposed to have been originally emigrants from Hindostan, and retain most Hindoo customs.

LOMBOCK, THE STRAIT OF, is formed by the island of Bally west, and that of Lombock east. The south entrance is in long. $115^{\circ} 43' E.$, and in lat. $8^{\circ} 45' S.$, where is a large island, called Banditti Island, to the west of which there is no passage. The navigation is here extremely dangerous, owing to the great rapidity of the tides. The strait of Allas, formed by the island of Lombock to the westward, and that of Sumbawa eastward, is reckoned the best and safest to the eastward of Java, having generally anchorage at the towns and villages.

LOMOND HILLS, several verdant hills of Scotland, in the west part of Fifeshire, distinguished by different names. The two highest are called the Eastern and Western Lomonds. From their relative situation, more than from their magnitude, they command a very extensive and variegated prospect into many distant as well as adjacent counties, and are seen at a

very great distance by travellers in various directions.

LOMOND, EASTERN, the most regular and beautiful of the above hills, is said to be about 550 yards in height above the level of the plain; and, where it is most accessible, seems to have been fortified near the top with a deep trench. It lies a little west of Falkland, and is skirted with furze, above which it exhibits a beautiful verdure at all seasons, and rises into a conical summit. It slopes gradually on the east, but on the west the descent is steep, down to the gap or valley below; which separates it from the Western Lomond, and extends above a mile nearly on a level. Very near the top there is a small cavity about one foot and a half in diameter, which, by travellers, has been esteemed a volcanic crater. It abounds with limestone, and has also some strata of good coal, and a lead mine.

LOMOND, WESTERN, is considerably higher than the Eastern, and has a large cairn of loose stones at the top. From its summit, the southern aspect has little variety, but a gradual and uniform descent, till it joins the parishes of Leslie and Portmouk.

LOMOND, LOCH, a large lake of Scotland, in Dumbartonshire, which Mr. Pennant styles 'the most beautiful of the Caledonian lakes.' The view of it from Tarbat presents an extensive serpentine lake, winding amidst lofty hills on the north, barren, bleak, and rocky, which darken with their shade that contracted part of the water. About twenty-eight islands are dispersed over the lake, well wooded; of these some just peep above the surface, and are tufted with trees; others are so disposed as to form a magnificent vista. Opposite Luss, at a small distance from the shore, is a mountainous isle almost covered with wood, near half a mile long. The largest island is two miles long, and stocked with deer. The lake is thirty-six miles long; its greatest breadth is eight; its greatest depth 120 fathoms. Its surface has, for many years past, been observed gradually to increase, and invade the adjacent shore. And, from a passage in Camden's *Atlas Britannica*, it appears, that an island existing in his time, called Camstraddan, in which was a house and orchard, is now lost. Large trees are also often found in the mud near the shore, overwhelmed in former times by the increase of water, occasioned by vast quantities of stone and gravel brought down by the rivers, and by the falls of their banks.

LOMONOZOF, a celebrated Russian poet, the great reformer of his native tongue, was the son of a fishmonger at Kolmogori, and was born in 1711. His genius for poetry was first kindled by the perusal of the Song of Solomon, versified by Polotski. He soon after left his father, and took refuge in the Kaikonospaski monastery at Moscow; where he indulged his taste for letters, and studied the Greek and Latin languages. In this seminary he made such progress in literature as to be employed by the Imperial Academy of Sciences. In 1736 that society sent him to the university of Marburg in Hesse Cassel, where he studied universal grammar, rhetoric, and philosophy, under the celebrated Christian

Wolf. He continued at Marburg four years, during which time he applied himself to chemistry, which he afterwards pursued with still greater success under the famous Henckel at Freyberg in Saxony. In 1741 he returned into Russia, was chosen in 1742 adjunct to the imperial academy; and, in 1743, member of that society, and professor of chemistry. In 1760 he was appointed inspector of the seminary, then annexed to the academy, and in 1764 Catharine II. made him a counsellor of state. Lomonozof excelled in various kinds of composition; but his chief merit is derived from his poetical com-

positions, the finest of which are his odes. They are greatly admired for originality of invention, sublimity of sentiment, and energy of language. In this, and other species of composition, he enriched his native language with various kinds of metre, and is hence styled the Father of Russian Poetry. His principal works were printed in 3 vols. 8vo. He wrote *Annals of the Russian Sovereigns*; and *The Ancient History of Russia, from its Origin to the Death of Yaroslav I.* in 1054; a work of great merit, as it illustrates the most obscure period in the annals of Russia. He died 4th of April, 1764.

L O N D O N.

LONDON, (Lat. Londin^{um} and Augusta), from the British Lyn-den, signifying the town on the lake, thus supplies in its name one of the earliest and most prominent facts of its history, i.e. that at the period of its foundation the Thames in this neighbourhood was rather a lake, occasionally subsiding into a stream, than a river regularly confined by fences and embankments. The name of the village of Mort-lake still perpetuates the same idea.

PART I.

EARLY HISTORY OF LONDON.

Ammianus Marcellinus mentions Londinium as the capital of the Trinobantes: and Tacitus says, 'London is so called from its situation, and Augusta from its grandeur.' If we advert to more remote writers, the chronicler, Geoffry of Monmouth, tells us that London was founded in the year 1108 before the Christian era, by Brute, a lineal descendant of Eneas, and called by him, after the great scene of his ancestor's exploits, Troy Novant, or New Troy, whence the inhabitants received the name of Trinovantes, or Trinobantes; and so, as we are further told, it continued to be called for 1000 years and more, till the sceptre having devolved on king Lud, a native of Britain, he gave it the name of Caer Lud, or Ludstoun, which in process of time became softened into London. Mr. Pennant, rejecting this story, has framed another of his own, nearly as fanciful. 'London,' he says, 'certainly existed prior to the invasion of Cæsar; it was, at the time of his arrival in this island, the capital of the Trinobantes, who had recently come from Belgium, and composed one of the small nations into which Britain was formerly divided. The name of this nation, as we learn from Baxter's British Glossary, was derived from the three following British words—tri now hant, which signify the inhabitants of the New City, the ancient name of the renowned metropolis of Britain.'

But the Commentaries of Cæsar at once dissipate these visions of the early grandeur of our metropolis, and prove that it owed every thing worthy of that character to the Romans. He tells us that 'what the Britons called a town was nothing more than a thick wood, surrounded by a ditch and fortified by a rampart, into which they retired when apprehensive of invasion.'

The proofs are indubitable, that the Britons knew nothing of brick-making at this period, and had never, so far as the Romans could observe, attempted to raise one stone above another. No traces of building have ever yet been discovered about London, which could with any probability be ascribed to a period anterior to the Roman invasion; though, of the natural advantages of the place, the Britons were probably as good judges as their conquerors. We find, accordingly, that as far as regards the site of London, a stronger one for purposes of defence could scarcely have been chosen. The heart of the city was on the summit of an angle of rising ground (about where St. Paul's cathedral now stands), bounded on the one side by the marshy Thames, on the other by the Fleta, a stream or torrent since covered over, which emptied itself into the Thames, near where Blackfriars-bridge has been since erected; and behind this naturally entrenched mount there was a thick wood, which extended far into the interior. We have only in imagination to cover this mount also with 'thick wood,' to complete the idea which Cæsar presents to us of the British town. So slowly, indeed, was the wood cleared away, that so late as the reign of Henry II. all the northern parts of the city bordered on a thick forest, where beasts of the chase roamed. When, under Cæsar, the Romans advanced to the Thames, the Trinobantes were the first of the tribes beyond that river who sent proposals of submission; and there is every reason to believe, that they formed no part of that native force which, under Cassivelaunus, attempted to oppose his progress. When victory declared for Cæsar, and he had effected the passage of the river, he found not only a friendly people in the Trinobantes, but, in their city or strong hold in the wood, as advantageous a position for encampment as the invader of an unknown territory could desire. It was such as a very slight application of the Roman skill in fortification could render impregnable to any attacks from the hostile nations of the interior: while, on the side of the Thames, he secured a free communication with the sea.

It has been a matter of dispute among antiquaries to determine the precise spot where Julius Cæsar forded the Thames. Camden and others think that it was at Shepperton, and that

what are called *Cowey Stakes* were planted there to obstruct his passage. Maitland, conceiving however that this would place the ford at a greater distance from London than would agree with Cæsar's account, was at great pains to discover a ford lower down. 'I endeavoured,' he says, 'by sounding the river at several neap tides, from Wandsworth to London-bridge, to discover a ford, which, to my no small satisfaction, I did, on the 18th of September, anno 1732, about ninety feet west of the south-west angle of Chelsea College-garden; where, in a right line from north-east to south-west, I found the deepest part of the channel to be only four feet seven inches deep.' But the state of any part of the river in modern times can be no evidence of what its state was in the time of the Romans. It is besides certain, that to the west of London-bridge, and not so high up as Chelsea, there existed, previous to the general embankment of the river, at least two well known fords. Milford Lane, opposite to St. Clement's Church in the Strand, was so called from a corn mill which anciently stood there, and from its leading to a ford across the river. At York House, the palace of the archbishop of York, which stood on the site of the streets adjoining to what still bears the name of York-stairs, there was another ford, which, as late as the beginning of the eighteenth century, had been used within the memory of many persons.

Mr. Bagford, another learned antiquary, in a letter to Hearne, written in 1714, says, 'And now I shall relate to you the manner of the Roman approaches near to London. These led along Kent Street, on the left hand, leading to London, and pointed directly to Dowgate, now so called, through an arch since built by the bishop of Winchester at his stairs, which, to this day, is called Stone Street, and came directly out of Surrey. It was at this very place (as I take it) that the Roman legions forded over the river of Thames, first the horse and then the foot, which might not then take them up to the shoulders. And this they might attempt (as we may conjecture) when the tide was first coming in, they then making an angle, and directing their course against the stream of the river. When they came to the middle of the stream, the tide drove them to their intended landing-place—which was Dowgate.'

At whatever place the Romans forded the river, it seems certain, at least, that the passage was not effected at any part lower than the junction of the Fleta with the Thames. All the territory within the angle formed by these two streams was occupied by the Trinobantes, who were in negotiation for a friendly treaty with the invader; and it must have been above it, therefore, that Cæsar found the hostile forces of Cassivelaunus drawn up to oppose his passage. It may possibly have been as far up as Cowey Stakes, but not less possibly as low down as the Millford;—in short, the range of reasonable conjecture is so wide, that nothing can be vainer than to attempt to come to a fixed conclusion on the subject.

1. *London, under the Romans.*—The Romans conquered to civilise. They showed the Britons

how to fashion the clay of their soil into bricks and domestic utensils; to build houses for themselves, temples to their gods, and courts for the administration of justice; to drain and embank; to cut roads and erect causeways; to lay out their towns in streets and squares, and to surround them with walls and towers. The Britons chose the site of London, but to the Romans we must allow the praise of adorning it with its earliest monuments of art.

It was soon perceived, by this sagacious people, that London, though well fitted by its natural strength for a military station, was still better qualified to be a place of extensive commerce. Seated at a considerable distance from the sea on a broad and navigable river, which, after watering some of the fairest portions of the island, discharges itself into the ocean almost in sight of the continent of Europe, it seemed calculated to be at once the mart for a great domestic and great foreign trade. The Romans, however, were warriors, and not traffickers; and they contented themselves with directing the Britons to the cultivation of those advantages, which have raised their capital to the proud pre-eminence which it now holds among the cities of the earth. We find, accordingly, that London was never, like other settlements of the Romans, formed into what they termed a military colony, exclusively Roman. Here the Roman prefects resided; and from this point, as we learn from the Itinerary of Antoninus, branched most of the great roads into the interior; both decisive proofs that they regarded it as the most important station they possessed in the island: yet neither did they occupy it alone, nor did they subject it to the inconvenient restrictions of a garrison-town. London remained a free city, where Roman and Briton mingled amicably together; and to which strangers from all parts were encouraged to resort with their commodities. So rapid was now the progress of London in commercial importance, that, as early as the revolt of the celebrated Boadicea, it is described by Tacitus as having become famous for the vast number of merchants who resorted to it, and the abundance of every species of commodity which it could supply. The first interruption to its prosperity arose from the early triumphs of this illustrious heroine. The Roman general Suetonius, unable in the outset to encounter so formidable a rebellion, was obliged to abandon London to its fate. Boadicea and her troops, eager to punish the ancient defection of the Trinobantes from the common cause of the native powers, and irritated by the spectacle which London presented of Roman greatness, massacred every soul they found in the city, and, setting fire to it in several places, nearly reduced the whole to ashes.

The Romans, however, again recovering the ascendancy, a new city speedily arose on the same favored spot, devoted as before to the peaceful pursuits of commerce, and flourishing by them. In the year 359 no less than 800 vessels are said to have been employed in the exportation from London of corn alone. On the decline of the empire, in the fifth century, London had to lament the departure of the be-

neficent founders of her greatness. There are various statements of the period when the Romans abandoned Britain; all that is certain is, that it took place not later than the year 450, when a dominion which brought many blessings to this island had wholly and for ever ceased.

2. *Roman remains.*—When the Romans evacuated London, they left it encompassed with lofty and well fortified walls. The circuit of them, as described by Stowe, measured two miles and a furlong; and this did not include the side towards the Thames, which, though originally walled in, was subsequently left to its natural defence: when perfect, the walls are supposed to have been twenty-two feet high. They commenced on the east with a large fort, erected on the present site of the Tower (supposed by Bagford still to survive under the name of the White Tower), and taking a semicircular direction by the Minories, Houndsditch, Cripplegate, Aldersgate, Newgate, and Ludgate, terminated in another lofty fort on the Thames, close to Fleet Brook. Besides these two principal forts, the walls were guarded by thirteen other towers, erected at proper distances on the land side, and supposed by Maitland, from some remains of them existing in his time, to have been about forty feet high. The entrances into the city on the land side were originally but three; by Aldgate on the east; Aldersgate on the north, and Ludgate on the west; but in the course of time many new gates were opened to facilitate communication with the country, such as Newgate, Cripplegate, Moorgate, Bishopsgate, the postern on Tower Hill, &c. The barbican, specula, or watch-tower, belonging to every fortified place, stood a little without the walls to the east of Aldersgate, on the spot which still goes by the name of Barbican. Mr. Bagford's account of the uses to which this was applied is curious. 'Here,' he says, 'the Romans kept cohorts of soldiers in continual service to watch in the night, that if any sudden fire should happen they might be in readiness to extinguish it, as also to give notice if an enemy were gathering or marching towards the city to surprise them. In short, it was a watch-tower by day, and at night they lighted some combustible matter on the top thereof, to give directions to the weary traveller repairing to the city, either with provision, or upon some other occasion. The same was intended by a lantern on the top of Bow steeple before the fire of London (although seldom made use of), for burning of lights, to give direction to the travellers and to the market people, that came from the northern parts of London. Of all these extensive out-works, walls, towers, and gates, very few vestiges remain.

The dangers which they were erected to avert, having long since ceased to exist: they have one after another been swept away in the course of modern improvement; and it is only by the names which survive, that their sites are now to be traced. The coins found at their foundations have been invariably Roman; an incontestable proof that it was to the protecting and magnificent spirit of the Roman people, that the British were indebted for the fortification of their capital. Some of the gates were very handsome and

costly structures; especially in later times, when the citizens delighted to distinguish themselves by benefactions and bequests for the embellishment of these inlets to their cherished city. Ludgate, which was taken down and rebuilt in the reign of queen Elizabeth, was not even at that time erected at a less expense than £1500; and the expenditure on the other gates was equally munificent. When in the last stage of their dilapidation they were ordered to be pulled down, they brought, even as old materials, considerable prices. Aldgate was sold for £157 10s.; Ludgate for £148; and Cripplegate for £91.

London Stone, now to be seen in the south wall of St. Swithin's Church, Cannon Street, was another monument of the Roman power. It appears to have been a miliary, of the same kind as that in the forum at Rome, where all the high-ways of the country met in a point, and from which they were measured. We have before alluded to the proof which this furnishes, that London was regarded by the Romans as the chief seat of their British dominion. When Jack Cade struck this stone with his sword, exclaiming, 'Now is Mortimer lord of London,' he was probably not unaware of its emblematic character.

According to Bagford, the Romans had in London a field of Mars, in imitation of that at Rome; and through so long a lapse of ages did the same spot continue to be appropriated to military exercises, that this field was no other than what, in more recent times, was called the Old Artillery Ground. 'On the farther side of Whitechapel Street,' he says, 'next Bishopsgate Street, was another station of the Romans, in that part which formerly bore the name of the Old Artillery Ground, and was their field of Mars, in which place the Romans trained up and exercised their young soldiers, and likewise the youth of the neighbouring Britons, in the skill and exercise of arms, that they might be more expert in the use of them upon all emergent occasions. And, if any sudden tumults or insurrections should happen in the city, they were then ready and at hand to suppress them. This field of Mars was in imitation of that at Old Rome, where they mustered their soldiers, and which must needs have been a very large place, as the same is excellently described and likewise observed to have been a Roman camp, by a judicious author in the latter end of queen Elizabeth's reign.

Of the temples of the Romans no specimens are now extant. In Norden's Middlesex, it is said, there was one near the Tilt Yard; and Bagford makes no doubt of there having been a temple of Diana on the south side of St. Paul's. The ruins of a building, called the Camera Dianæ, situated on the eminence of St. Paul's Wharf, existed in the time of How, who wrote a continuation of Stowe; and the tenements which have been since erected on its site are still designated in the leases of them as part and parcel of the ancient Camera Dianæ. From the accounts given of this structure, however, it does not appear to have been at all of the nature of a temple. The Camera Dianæ was a vaulted labyrinth, similar in its ground plan to the celebrated

Rosamond's Bower at Woodstock, and was employed by Henry II., of amorous memory, for the same purpose. The one was the country, and the other the town repository of this jewel of his heart. 'At this time,' says How, 'some ruins of it are remaining, and many evident testimonies of intricate turnings and windings, as also a subterraneous passage to Castle Baynard, which no doubt the king made use of privately to have access to his brightest Diana, one of the most exquisite and most celebrated beauties that we find mentioned in any history.' The name Camera Diance had an obvious reference to those purposes of chaste seclusion, for which the building was designed; and it would be preferring a less probability to a greater, to suppose that it derived this appellation from having been erected on the same spot where a Roman temple of Diana previously stood.

In December, 1803, a large and very beautiful specimen of Roman mosaic was accidentally discovered by some workmen employed in digging for a sewer immediately opposite the East India House. It is preserved in the honorable company's museum, and suggests to us a splendid idea of the extent to which the Romans had carried the internal embellishment of their houses. It is about eleven feet square, and exhibits the centre of the floor of an apartment, which could not have been less than twenty-two feet square, but in all probability was considerably larger. The figure of the god Bacchus is represented reclining on the back of a tiger. The drawing, coloring, and shadows, are all effected with great skill and ingenuity, by the use of about twenty separate tints, composed of tessellæ, of different materials. The major part consist of baked earths, but the more brilliant colors of green and purple, which form the drapery, are of glass. These tessellæ are of different sizes and figures, adapted to the situations they occupy in the design; and are placed in rows, either straight or curved, as occasion demanded, each tessella presenting to those around it a flat side. The interstices of mortar being thus very narrow, and the bearing of the pieces against each other uniform, the work in general possessed much strength, and was, very probably, when uninjured by damp, nearly as firm as the solid stone. A mosaic pavement, with a similar device, was discovered in 1711—12 at Woodstock in Oxfordshire.

3. *London to the Danish conquest.*—The departure of the Romans proved the commencement of a long train of calamities to London. The sun of her prosperity seemed to have set. The Saxons, invited over to furnish that protection against the incursions of the Scots and Picts which the Romans could no longer afford, violated the compact which gave them a footing in the country; and during the vain and sanguinary struggles of the British, for nearly a century and a half, to preserve themselves from Saxon subjugation, London, from its importance, became, more than any other part of the island, a prey to the evils of intestine war. When the Saxons had at last established themselves in the sovereignty of the country, it was no longer with London that the metropolitan sceptre was suffered to re-

main. Ethelbert, king of Kent, to whom all the Saxon nations, south of the Humber, were feudatory, made Canterbury the seat of his government; and neglected London ceases to figure in history, except for the disasters which befel it. In 664 it was ravaged by the plague; in 764 it was wasted by fire; in 798 it again suffered severely from fire, and numbers of the inhabitant perished in the flames; and in 801, before there was time to repair the ruin done, a third conflagration nearly completed the work of destruction. On the establishment of the Heptarchy under Egbert, A. D. 827, the fortunes of London brightened for a moment. Egbert chose it for his residence, and here, in 833, a wittenagemot, or parliament, was held. But on the invasion of England by the Danes, soon after, they drove Egbert from his adopted capital, and, after delivering it up to pillage and massacre, reduced nearly the whole to ashes.

In such a succession of calamities, it was inevitable, that nearly all that beauty and magnificence which the Romans had imparted to London should for ever disappear. Its naked walls, in fact, alone remained; and if a city, far transcending even the Roman Augusta, has since arisen within and around them, it is to the British themselves that the merit and the fame belong.

After a dismal lapse of nearly four centuries, the reign of the renowned Alfred brought, among many blessings, the restoration of London to its former greatness and prosperity. Having, A. D. 884, freed the kingdom from the Danish yoke, he gave directions for rebuilding the desolated cities; and of these none claimed or received a larger share of his beneficent patronage than London. He repaired and strengthened the walls; he prevailed on the inhabitants, whose houses had hitherto consisted almost wholly of wood—the cause of repeated conflagrations, to rebuild many of them of brick and stone; he presented them with models of merchant ships, that would both sail better and carry larger cargoes than those of former times; and he laid down the plan of that excellent system of municipal government which, with various modifications and improvements, subsists to the present day. With such aids and encouragements, the renovation of London proceeded so rapidly, and the spirit of its citizens so much revived, that notwithstanding an accidental fire in 893, which occasioned very considerable injury, it was in a few years in a condition, for the first time since the departure of the Romans, not only to defend itself against invasion, but to go forth and meet the invaders. In 895 when a predatory party of the Danes, under the command of Hastings, encouraged by the absence of Alfred from his capital, had advanced as far as Beamfete, the garrison of London, joined by a body of gallant citizens who eagerly volunteered their services, went out and surprised the enemy in their camp, cut all who opposed them to pieces, took a great many prisoners, and spoiled the spoilers. When again, in 896, another body of the Danes had sailed up the river Lea to Ware, and posted themselves in a strong position between that place and Hertford, Alfred, at the head of his grateful and in-

crepid citizens, marched from London, attacked the enemy in their intrenchments, and compelled them to fly at all points.

In 994, about one century after the restoration of London by Alfred, during all which time it continued to increase in strength and opulence, the kings of Denmark and Norway, at the head of a numerous fleet and army, sailed up the Thames, with the hope of reducing the city to their power. The reins of the Saxon government were at this moment in the hands of the feeble and dastardly Ethelred II., and the citizens of London were left unassisted to the defence of their own walls. So bravely, however, did they defend them, that the enemy were repeatedly repulsed with great loss, and finally obliged to raise the siege. The Danes, though unable to make themselves masters of London, ceased not to harass every other part of the country with their incursions; till, weary of resistance, Ethelred abdicated his throne, and retired into Normandy, A. D. 1013. London, thus abandoned, was at length compelled to open her gates, and with her the whole of England submitted to the sceptre of Sweyn, king of Denmark.

On the accession of Canute, the son of Sweyn, to the throne, the citizens of London joined in the general effort made by the Saxons under the brave Edmund Ironside, the son of Ethelred, to throw off the Danish yoke. For a time the enterprise gave promise of a glorious triumph. Canute was obliged to abandon the capital to his rival; and, in 1016, Edmund Ironside was in London crowned king of England. Three times in the course of that year Canute returned and laid siege to it, but was as often repulsed with great loss. The contending princes, finding at length that their forces were too equally balanced, to give either a hope of sole dominion, entered into an agreement for a division of territory; but scarcely had this compromise been made, when the assassination of the gallant Edmund, by his perfidious relation Edric Streon, depriving the Saxons of a leader, left Canute sovereign of all England.

4. *London under the Danes and Normans.*—Historians have represented Canute as filled with resentment against London, for the strenuous resistance which it made to his pretensions, and its persevering attachment to the Saxon line. Of a tax of £82,000 Saxon, which he imposed on the whole country, the portion for which he assessed London was nearly one-eighth; and it is to this we are referred as a proof of the weight with which his vengeance fell upon this devoted city. It seems to us a great deal more probable, that one-eighth was only the fair proportion which the wealth of London then bore to that of the rest of the kingdom; for as yet agriculture had made but small progress in the inland counties; there were few or no manufactures; the bowels of the earth had scarcely begun to pour forth their mineral treasures; and whatever profit could be derived from commerce with foreign nations was almost wholly absorbed by the merchants of the Thames. Canute was too high minded to cherish an ungenerous recollection; too wise, had it been otherwise, to

satisfy his revenge by the oppression of a people whom he wished to attach to his dominion. He proved, in fact, a beneficent conqueror. He established order and tranquillity throughout the country; and was, perhaps, the first of our princes who was at the pains to protect his subjects in their commercial intercourse with foreign states, by treaties which had this alone for their object. A letter which William of Malmesbury has preserved (l. ii. c. 11), written by Canute to his regent in England, when he was on a pilgrimage to Rome, shows a solicitude on this head which does immortal honor to his memory. 'I have conversed,' he says, 'with the pope, the emperor, and all the princes whom I found here, respecting the grievances imposed on my subjects, whether English or Danes, on visiting their several states; and have insisted that in future they shall be treated more favorably, and exempted from the tolls and exactions of various kinds, with which they have been hitherto harassed. The emperor, king Rodolphus, and the other sovereigns, have accordingly listened to my remonstrances, and have assured me that henceforth no subject of mine, whether merchant or pilgrim, passing through their territories, shall meet with any obstruction, or be made liable to the payment of any impost whatever.'

On the death of Hardicanute, the third and last prince of the Danish line, the nation called to the throne a prince of the race of Alfred, in the person of Edward the Confessor. The privileges of London, which seem to have rested hitherto altogether upon usage and tradition, received from Edward their first statutory recognition; but what these privileges were does not distinctly appear. In the *Speculum*, one of the oldest records 'de antiquis legibus, libertatibus, et consuetudinibus civit. Lond.' there is a great deal of romance about the privileges of London being 'after the manner of old great Troy.' The only certain fact we are able to collect from it is, that London possessed from time immemorial a right of conferring liberty on such slaves or vassals as should reside for a year and a day within the city unclaimed by their lords; and that this was among the rights confirmed in general terms by Edward. The city was from this circumstance called the Free Chamber of the King of England; inasmuch as a slave so emancipated might ever afterwards 'as freely and securely tarry there, as if he were in the house or chamber of the king.' The value of such a privilege, at a time when the feudal system held all the rest of the kingdom in slavery, is beyond all calculation. It presented to the people at large the first chance of obtaining liberty through some other means than the benevolent caprices of their feudatory lords; it made London, to the rest of England, nearly what England has since become to all the world beside—the only spot, to touch which is to be free. Proud is the distinction which London thus enjoys, of having been the nursery of British liberty! A distinction only equalled by another, to which London has no less a claim, that of being for ages the chief strong hold of that liberty which she nursed and reared. So justly have the citizens appreciated a blessing, which, for

a long time they almost exclusively enjoyed, that there are instances upon record of individuals having been degraded from the rank of citizens, solely because, forgetting the freedom to which they had been raised, they had descended to hold in villainage lands without the limits of the city.

It was not by force of arms only, but by treaty and compact, that William the Norman advanced to the throne of England. The citizens of London, like the men of Kent, agreed to receive him for their king; but it was with arms in their hands, and with spirit to use them if they had been so inclined. That the Normans should abuse the influence which they acquired, by the elevation of their chief to the throne of England, was an event which might have been reasonably anticipated; but let us not confound want of prudence with want of courage.

The conditions on which the citizens of London consented to William's assumption of the crown formed the subject of a written charter, the first they ever possessed. It is still preserved among the city archives, and consists of only four lines, on a bit of parchment six inches long and one broad. The following is a literal translation of this interesting document:—'William the king greeteth William the bishop and Godfrey the portreve, and all the burgesses within London, friendly. And I acquaint you, that I will that ye be all there law-worthy, as ye were in king Edward's days. And I will that every child be his father's heir, after his father's days. And I will not suffer that any man do you wrong. God preserve you.'

To be law-worthy appears to have meant, that they should, in all cases of disputed right, or alleged crime, be entitled to a legal trial; that they should not, like men who still remained in a state of vassalage, be liable, in their persons or possessions, to arbitrary rule. That 'every child should be his father's heir,' insured the descent of property to the heirs of those who acquired it; an important privilege, for there were still numbers who held their lands and goods at the will of the feudal lords, and could never be sure of leaving any part of the fruits of their industry to their posterity.

Among the laws or customs of King Edward's days, referred to in this charter, we see that most important one of conferring freedom on every vassal or slave who could accomplish a residence of a year and day within the city, unclaimed by his lord. William not only confirmed this privilege to the city of London, but he extended it to all other cities and walled towns throughout the kingdom.

The first circumstantial detail of the rights of the city of London was contained in a charter of confirmation, granted by William's son, Henry I. Some of these have in the course of time been considerably modified; such as the exemption of the citizens from going (from being obliged to go), to war (*nullus eorum faciat bellum*); their freedom from all tolls, duties, and customs, throughout the realm; and the privilege of hunting in Chiltre, Middlesex, and Surry, now annually compounded for by a day's frolic at Epping. Others again have been lost entirely; particularly a right of summary execu-

tion against the goods of debtors without the walls: but the citizens have still, as is declared in this charter, the right of electing their own sheriffs and magistrates, and of being amenable only to courts held within the walls—for that rule, which is to this day observed by the king's courts of holding sittings in each term at Guild hall for the city of London, is but the practical result of this privilege; and they are still exempted from having soldiers, or any of the 'king's livery,' quartered upon them. A stout sheriff of the city, named John de Causton, once resisted, by force of arms, an attempt to invade this last privilege within the verge of the tower in the time of Edward II.; and, on being prosecuted for this contempt, as it was called, on the king's authority, was brought in 'faulty in nothing.'

It is deserving of remark, that this declaratory charter makes no mention of the rights of inheritance and of conferring freedom, recognised by the charter of William I.; and the omission can only be explained by the supposition, that they had by this time become matters of such notoriety and necessity, as not to be reckoned among those rights which stood in need of confirmation. The omission was not, however, without its consequences; for it gave occasion in the reign of Henry VI. to a writ of *inspeximus*, issued for the express purpose of ascertaining on what ground the city of London claimed the privilege of emancipating servants and natives, 'tarrying there for a year and a day.' The return which the lord mayor and aldermen made to this writ showed, so satisfactorily, that both London and all other walled cities and towns now possessed this right, that it was again solemnly recognized and confirmed by the king.

In the same charter by which he declared and confirmed the privileges of the citizens of London, Henry conferred on them, for an annual rent of £300, to be paid to his majesty and his heirs for ever, the perpetual sheriffalty of Middlesex. Considering the low prices of provisions at this period, it would seem that they paid dear for the acquisition. For such was the prosperous state of the country during this reign that corn sufficient for a day's consumption of 100 persons, could be purchased for the small sum of 1s.; and a pint of wine was sold at the tavern for 1d., with bread for nothing! The prices of these articles have since increased at least forty-fold, so that the £300, paid by the city of London in the time of Henry I. for the privilege of giving sheriffs to the county of Middlesex, were equal to not less than £12,000 at the present day. The privilege was by no means, however, a nominal one though extravagantly paid for. The internal government of so large and increasing a metropolis as London could never have been well administered without it. Already had it suffered severely from the ease with which offenders could escape from the jurisdiction of its magistracy into the adjoining county of Middlesex; and was to remedy this grievance, that the citizens were now content to pay the price of a principality, to unite the powers of the sheriffalties of London and Middlesex in two freemen of their own nomination.

The reign of Richard I., though not one of glory or prosperity to England, cannot be said to have been productive of much positive harm. He scattered charters among his subjects, in order to raise the means of pursuing his schemes of adventure in foreign lands; but they were charters of liberty. He left his people in a great measure to shift for themselves; but the evil consequences of interfering little with the pursuits of an industrious nation, do not appear to have been enormous. When the chivalrous knight-errantry of Richard had terminated in an Austrian dungeon, London was both able and generously forward to contribute largely to his ransom; and on his return from captivity, such was the civic magnificence with which he was received in his ancient capital, that a German nobleman, who attended Richard to England, was constrained to observe, that 'had his master, the emperor, been aware of the wealth of the king of England's subjects, he would have demanded a far higher sum for his release.'

Richard was not unmindful of the loyal services which London rendered on this occasion. He granted the citizens a confirmation of all their rights and privileges, such as they existed in 'the freest and best' periods of their history, and he farther conferred upon them the conservatorship of the Thames, and the power of fixing a standard of weights and measures for the whole.

5. *Foundation of Westminster, and its junction with London.*—For several centuries after the foundation of London, the space which is now covered by the sister city of Westminster consisted of a small island, called Thorny, in consequence, says Stowe, of its being 'a place overgrown with thorns, and environed with waters.' Here, according to monkish chronicles, there anciently stood a heathen temple of Apollo, out of the ruins of which Sebert, king of the East Saxons, after his conversion to Christianity A.D. 612, erected a church, which he dedicated to St. Peter, and which forms the east angle of what is now called Westminster Abbey. Sir Christopher Wren, however, could not discover in the materials of this structure the least trace of heathen or Roman art. The church of St. Peter's was certainly one of the earliest architectural monuments of the introduction of Christianity into Britain; but it was, in all probability, not erected till after the principal remains of the Roman power had been swept away amidst the furious struggles, which ended in the subversion of Britain to the Saxons.

When the Danes began, in their turn, to contend for mastery with the Saxons, the church of St. Peter's suffered severely from their devastations; and but for the piety of Edgar the Peaceable, who repaired it in 958, and, at the same time, erected it into a monastic establishment, it might not have survived the downfall of a Saxon dynasty. From its situation to the westward of London, it was now called (in monkish Latin) *Westmonasterium*, and hence the modern name of Westminster.

On the temporary restoration of the Saxon dynasty, in the person of Edward the Confessor, Westminster was one of the few places to which that event proved auspicious. By the peniten-

tiary labors of this sceptred monk the abbey was enlarged into that magnificent fabric which, embellished by Sir Christopher Wren, now stands the admiration of the world; and near to it he erected a palace (on the site since called Old Palace Yard) which, though now no more, made Westminster the seat of royalty, as well as of ecclesiastical splendor. The courts of law and parliament necessarily attached themselves to the spot where our kings resided; and contributed, in a very material degree, to raise Westminster to dignity and importance.

In 1257 Henry III. granted to the abbot and convent of Westminster the privilege of holding a market and fair, for the space of forty days; and in 1352 the town had so much increased, that Westminster was one of the ten places where, by act of parliament, the staple of wool was to be perpetually held.

An order of council was passed in the ensuing year (1353), which imposed a duty on every pack of wool, as well as all other goods, 'carried either by land or water to the staple of Westminster;' 'for the purpose of repairing the highway leading from the gate of London, called Temple Bar, to the gate of the Abbey at Westminster.' It is evident, from this record, that London and Westminster were then regarded as distinct towns; but it would be, perhaps, too much to infer, that 'the highway' between them, 'now the noble street, called the Strand, was not then built upon, but was a mere country road, having, however, many noblemen's and gentlemen's houses and gardens adjoining to it,' &c.; Hughson, vol. i. p. 78. For we learn, from the same order of council, that the cause of the impost was, the 'highway being, by the frequent passing of carts and horses, carrying merchandise and provisions to the said staple, become so deep and miry, and the pavement so broken and worn, as to be very dangerous both to men and carriages;' and we farther find, that it was ordained, that 'all owners of houses, adjacent to the highway, should repair as much as lay before their doors.' It seems pretty clear, from these parts of the edict, that even at this early period the buildings of both cities had extended considerably beyond their respective gates, along the line of the highway between them; although probably they did not reach on either side as far as Charing Cross, which is supposed to have derived its name from a village called Charing, which anciently stood midway between London and Westminster.

The privilege which Westminster possessed, of holding a fair for forty days every year, was fenced with a prohibitory clause, by which, during all that time, no sales were permitted, either in London or in any of the places adjacent. As trade and population increased, the evil consequences of this monopoly came to be very severely felt by the citizens of London. The corporation, therefore, opened a negociation with the abbot, for the redemption of this part of their privilege, and found him so well disposed to prefer a present good to all prospective advantages, that for the sum of £8000 he abandoned the right to a fair altogether. By this stroke of priestly cupidity, Westminster, which

had been rising fast in commercial importance, was almost entirely cut off from this source of prosperity, and left to depend in future chiefly upon those advantages which it derived from being the residence of the court. The Genius of Trade took its leave of her for ever; and Fashion became henceforth the tutelary deity of Westminster.

On the general suppression of the monasteries by Henry VIII., that of Westminster was converted into a bishopric; but in 1550 the bishopric of Westminster merged in that of Norwich. It was this temporary possession of a mitre which conferred on Westminster the rank of a city; and, though the mitre is gone, the popular voice, inclining always to reason in its decisions, has refused to give an inferior title to a place, which, though no longer a bishop's see, is the seat of supreme power both in church and state.

Since that period, Westminster has spread so extremely on all sides, and become so interlaced with London, that the two cities have lost every external mark of separation, Temple Bar alone excepted. But see WESTMINSTER for some particulars of its history, into which we cannot now diverge.

6. *The great charter and early wealth of London.*—On the accession of king John to the throne, the citizens of London paid 3000 marks to him for a confirmation of their liberties. 'It shall be delivered to them,' said the royal mandate, 'on these terms, that if they will give those 3000 marks they shall have the charter; but if not, they shall not have it.' On the field of Runnymede, this mercenary tyrant was afterwards content to give them what they pleased, on their own terms. The general resistance which produced that glorious declaration of the rights of Englishmen, Magna Charta, had its first rise under the city banner. The castellan and standard bearer of London, at this period, was Robert Fitzwalter, a gallant knight of Norman descent, and lord of Baynard's Castle, an ancient and princely fabric, from which one of the wards of the city derived its name. This knight had a daughter, called Matilda the Fair, whose beauty attracted the admiration of the king. John came not, however, as an honorable suitor, and, when his proposals were repelled with indignation, he threatened to have recourse to violence. Fitzwalter appealed to his brother barons, to aid him in protecting his child from the polluting grasp of the tyrant. With honorable alacrity they obeyed the call; and, from the battlements of Baynard's Castle, the city banner waved defiance to aggression. John, whom a continued series of misdeeds had deprived of all favor with his subjects, was unable to muster a force sufficient to cope with so formidable an opposition; and, yielding reluctantly to the necessity of his situation, he affected to have abandoned all design against the honor of Fitzwalter's family, and, by the strongest assurances of respect for the rights of the barons, prevailed with them to disperse their forces. No sooner, however, did he find himself alone in the field, than he violated every promise he had made. Taking Fitzwalter by surprise, he compelled him to fly

the country; razed his castle of Baynard to the ground; and when the unfortunate Matilda, whom her father, in his sudden flight, had been forced to leave behind him, still resisted all his entreaties, he is said to have destroyed by poison that beauty which he could not enjoy. The day of retribution at length arrived. Fitzwalter had taken refuge in France, and fought on the side of the French in their battles with the English under king John. During the truce which took place, in 1214, an English knight rode into the space between the two armies, and challenged any one of the opposite side to a trial of prowess. Fitzwalter, mounted on a noble charger, instantly came forth to accept the challenge, and at the first course struck both the English champion and his horse to the ground. John, admiring the gallantry of the stranger, warmly exclaimed, 'He were a king, indeed, who had such a knight.' Fitzwalter had been recognised by some old friends in the English camp, and, on hearing this observation from John, they kneeled down, and said, 'May it please your majesty, he is your own knight; it is Robert Fitzwalter.' John, repenting the injury he had done to the gallant knight, next day effected a reconciliation with him, and publicly restored to him all the possessions of which he had been so unjustly deprived. Fitzwalter, however, returned to England only to find new cause, in common with his fellow citizens, to detest the arbitrary rule of John; and we accordingly behold him again a leader against the king, in that patriotic struggle which obtained for England the great charter of its liberty. By the thirteenth article of this charter it is specially provided, 'That the city of London, and all other cities, burghs, and towns, and ports of the kingdom, shall enjoy all their free customs both by land and water.'

Of the military importance of the citizens of London, about this period, contemporary writers give us a very high idea. Although exempted by their charters from 'going to war,' they appear to have been naturally of so martial a temperament, and so forward in the assertion of their rights, even at the point of the sword, that William of Malmesbury assures us, they 'showed at a muster 20,000 armed horsemen, and 40,000 footmen, serviceable for the wars.' In this number, however, were doubtless included the followers of many noblemen and chiefs, who resided in the city, or who, from various causes, considered themselves identified with it; for so large a quota is wholly incompatible with every account we have of the ancient population of London.

Speaking of the commercial prosperity to which London had now reached, the same writer describes it as 'a noble city, renowned for the opulence of her citizens, and crowded with the merchants who resort thither with their various commodities.' Corn was still, as in the time of the Romans, their chief article of commerce; 'they had their granaries always filled, whence all parts of the kingdom were supplied.'

The commencement of the reign of John's successor, Henry II., presents us with a very striking display of the wealth for which the citizens of London were now, above all other classes of their fellow subjects, distinguished. When it

was known, that queen Eleanor was to ride through the city to be crowned at Westminster, the chief citizens, to the number of 360, preceded by a band of trumpeters, went out to welcome her majesty. They were all clothed in silken garments, richly embroidered with gold; and mounted on horses, most splendidly caparisoned. Every man bore a cup of gold or silver in his hand; and, having joined in the royal train, these 360 cup-bearers served the wine, as butlers, at the coronation of her majesty.

The prodigality and misrule of Henry soon destroyed that cordiality which, at first, subsisted between him and the city. When, however, his necessities became so great, that he was obliged to pawn the crown jewels for an immediate supply, it was to the citizens he was forced to have recourse. Angry that they should accept a pledge which it was ignominious in him to give, he passionately exclaimed, 'Were the treasures of Augustus Cæsar exposed to sale, the city would buy them. These fellows, who call themselves barons, are wallowing in wealth and every species of luxury, whilst we labor under the want of common necessities.'

When the citizens, however, had to deal with princes, not embarrassed through their personal follies, but impoverished by honorable enterprises for their country's benefit or renown, they stayed not for pledges to administer most liberally to their wants. They presented the hero of Cressy with a free gift of 20,000 marks, to pursue his honorable warfare in France; and their mayor, the celebrated Whittington, at an entertainment given at Guildhall to the hero of Agincourt, threw into a fire of spices, bonds which he held from that monarch, for money advanced, to the amount of no less than £60,000!

It must be allowed, indeed, that although the citizens of London were occasionally thus liberal, there was, in general, a considerable degree of reserve between the city and the court, on the score of money transactions. Till as late a period as the reign of Elizabeth, our sovereigns were obliged to have recourse to the merchants of Antwerp for such loans as they required; and though the citizens of London often became security for these loans, because without it they could not have been obtained, they could never be induced, except as in the case of Henry III., when the jewels of the crown were to be saved, to become themselves the lenders. Can any one be in doubt as to the reason? Notwithstanding all the charters, and confirmations of charters, granted by the sovereigns of England to their subjects, property was still insecure. A king of England might still deny to his own subjects that justice which he would not nor durst not, deny to those of another. The first considerable loan effected in England, solely on the personal security of an English monarch, was negotiated by Sir Thomas Gresham, in behalf of the maiden queen, and this fact we may regard as a certain indication that her government approached nearer to one of order and law, than England had ever known since the days of Alfred. Her majesty paid the interest of the loan regularly, until she was in a situation to discharge the principal; and it has been ever since found, that it is only necessary

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to observe the same simple rule of honesty, to find at home, and in London itself, whatever aid the exigencies of the public service require.

The opulence of the citizens of the olden time was in no instance more laudably displayed, than in doing honor to such illustrious strangers, as friendship to the monarch, or the chances of war, brought to England. In 1363 Henry Picard, who had some years before served the office of lord mayor, gave a splendid entertainment, at his house in Cheapside, to king Edward III., king John of France, king David of Scotland, and the king of Cyprus; an honor such as no citizen ever before enjoyed.

Among the citizens themselves there appears to have been a constant rivalry in sumptuous and costly living. A dish fit for an alderman, in those days, while turtle was as yet unknown, was one of eels, so lusciously dressed, as to cost about £5, equal to at least £80 of our present money.—Fitzstephen. At the annual Spittal feast, the cost to the sheriffs, for wine alone, was, about the middle of the sixteenth century, £600; so, that supposing the guests to have drank of Malmsey only, which, though the most choice wine of that period, cost no more than 1s. a gallon, there must have been emptied, on this occasion, the incredible number of 48,000 bottles! The expense of feasting became at length so excessive, that in 1554 the corporation found it necessary to pass a bye-law to restrain it. 'So huge and great,' says this curious document, had 'the charges of the mayoralty and shrievalty' become through this means, 'that almost all good citizens flee and refuse to serve in this honorable city, only because of the great excess and chargeable fare and diet, used in the time of the said offices.' To remedy this grievance, it was ordained, that no mayor, or sheriff, or alderman, or commoner, should have at dinner or supper more courses than one, and not more dishes at one course than six, whether hot or cold. Some curious reservations, however, follow, which show, on the part of the corporation, a prudent care to soften, as much as possible, the hardship of this limitation. It is provided, that 'one or two of the same six dishes may come to the board hot, as a reward, if they will, after the first three or five are served.' It is farther specially declared, that neither brawn, nor collops with eggs, nor sallads, nor pottage, nor butter, nor cheese, nor eggs, nor herrings, nor sprats, nor shrimps, nor any shell fish whatever, nor any kind of unbaked fruit, are to 'be accounted for any of the said number of dishes above-mentioned.' And moreover, as the guests could not be supposed, after such penurious fare, to have any disposition to make merry, it was decreed, that 'from henceforth neither mayors nor sheriffs shall keep any lord of misrule (merry andrew or fool), in any of their said houses.' All these regulations, it will be observed, had reference only to the private and family entertainments of the citizens; for, it is yet farther provided, that when a foreign ambassador, or any of the privy council, happens to be of the party, the feast may be 'amended and ordered,' at discretion.

In 1573 we find it again a matter of grave lamentation, that there should be such an excess

of good things at the tables of the chief magistrates, and of the companies; nay, at the very taverns and cook-shops, the consumption of venison, we are told, was shameful, 'insomuch that the court was much offended with it.' The common council, therefore, in order 'that the city might not continue to give the queen and nobility offence,' issued another commandment, by which they forbade all such extravagant feasting in future, except at their 'necessary meetings,' and ordered that, even on these necessary occasions, (most incredible sacrifice!), there should be no venison.

We have mentioned Whittington as entertaining the hero of Agincourt. The story of Sir Richard and his cat is not, after all, so remote from possibility as might be imagined. Mr. Southey, in his *History of the Brasils*, relates, that 'the first couple of cats which were carried to Cuyuba, sold for a pound (a pound's weight) of gold. There was a plague of cats in the settlement, and they (the cats) were purchased as a speculation, which proved an excellent one. Their first kittens produced thirty oitavas each; the next generation were worth twenty; and the price gradually fell as the inhabitants were stocked with these beautiful and useful creatures.' In the East, also, according to a Persian MS. quoted by Sir William Gore Ouseley, there is an island, which derived its name from a circumstance of the same kind; and Mr. Collet, an intelligent collector of relics, asserts, without hesitation, that the story of Whittington and his Cat is 'borrowed' from this tale of the East. It is scarcely necessary to remark, that there may have been a plague of rats, and that cats may have been worth their weight in gold, more than once since the world began. Although it is just possible, therefore, that the story of Whittington, as it exists in nursery records, may have had some foundation in fact, there are few who will not be desirous of a more probable explanation of his extraordinary rise in life. Foote, in his comedy of the *Nabob*, makes Sir Matthew Mite offer to the Society of Antiquaries a suggestion on the subject, which is not without ingenuity, whatever degree of truth it may possess.—'The commerce,' says Sir Matthew, 'which this worthy merchant carried on was chiefly confined to our coasts; for this purpose he constructed a vessel, which from its agility and lightness he aptly christened a cat. Nay, to this day, gentlemen, all our coals from Newcastle are imported in nothing but cats; from hence it appears, that it was not the whiskered, four-footed, mouse-killing cat, but the coasting, sailing, coal-carrying cat—that, gentlemen, was Whittington's cat.'

While Whittington was yet a boy, the burning of coal was considered such a public nuisance, that it was prohibited by an act of parliament, under pain of death; but it is singular enough, that by the time he had been 'thrice lord mayor of London' (1419), and although there is no trace of any repeal, in the interim, of the prohibitory statute, the importation of coal formed a considerable branch of the commerce of the Thames. 'As early as 1421,' says Mr. Brand in his *History of Newcastle*, 'it appears to be a trade of

great importance, and that a duty of 2d. per chaldron had been imposed upon it for some time.' To account for the trade having made such progress, while a statute against it remained unrepealed, and of such rigorous operation, that, according to a record in the tower, a person was once actually executed for offending against it (Sir Everard Home's *Dissertations*), we must suppose, that the crown had exercised that dispensing power, which it assumed in the earlier periods of our history, and had permitted to the lieges generally the importation of the forbidden commodity; or, what is more probable, because more consistent with the court practices of those days, granted to some favored individual a license to make his fortune, by infringing the law. It would be making a bold leap to a conclusion to say, that Sir Richard Whittington was the individual on whom this privilege was conferred; and yet the supposition is countenanced by a very strong declaration in the foundation charter of Whittington's College. The members of it are directed to remember in their prayers 'Richard the Second, and Thomas of Woodstock, duke of Gloucester, special lords and promoters of the said Richard Whittington;' showing distinctly, that it was to some special privilege or favor conferred on him by these princes, that he was indebted for his rise in life. It is farther extremely worthy of observation, that from the first opening of the coal trade in England, and for ages after, it had a reputation for making fortunes, only exceeded by that of the mines of Golconda and Peru.

Many circumstances thus combine to heighten the probability, that Sir Richard Whittington, who flourished at the same time with the commencement of this trade, was one of those who made a fortune by it; and that it was, as Sir Matthew says, 'the coasting, sailing, coal-carrying cat,' that was the real instrument of his aggrandisement. It had only to become a by-word, that by a cat and a king he had made his fortune; and popular invention would soon supply all the other lineaments of the story. In the print of Whittington by Elstrucke, he is represented with a grimalkin by his side, but Granger, our best historian of portraits, says, that it was substituted for a skull, which originally occupied its place, as the common people did not choose to purchase the print without their favorite traditional emblem.

Sir Richard was a liberal benefactor to the city, over which he had so often the honor to preside. At his own expense, he built the chapel of guildhall, and the library of Christ's Hospital; made large additions to the guildhall and St. Bartholemew's Hospital; and left funds to his executors for entirely rebuilding the prison of Newgate, which was previously in a most ruinous and miserable condition. He, besides, annexed to the church of St. Michael's a college of priests, called after his name, with an alms-house for thirteen poor persons; and to use the words of his executors, in the ordinances of the college, 'while he lived had ryghte liberal and large hands to the needy and poor.' The house in which Whittington resided is still to be seen in Swithin's-passage, Moor-lane.

7 *Ancient sports and pastimes.*—Let us come now,' as honest Fitzstephen says, 'to the sports and pastimes, seeing it is fit that a city should not only be commodious and serious, but also merry and sportful.' In the olden time, the inhabitants of the metropolis united the duties of the citizen with the relaxations and recreations of the country squire. Fitzstephen notices, that the citizens delighted in hawks and hounds, and the 'common hunt' still gives a yearly salary to an officer of the lord-mayor's household, whose duty it is to take care of a pack of hounds, which the corporation is entitled to keep. The exercise of hunting is now little indulged in by the citizens, 'not, however,' says Stowe, 'for want of taste for the amusement, but for want of leisure to pursue it.' The 'common hunt,' who used to purchase his place, which sometimes sold as high as £1500, had formerly a house in Finsbury-fields, where the hounds were kept, particularly 'the deep, full-mouthed hounds,' and he had a yearly salary and perquisites.

'In the holi lays all the summer,' says the same historian, 'the youths are exercised in leaping, dancing, shooting, wrestling, casting the stone, and practising their shields. The maidens trip with their timbrels, and dance as long as they can well see. 'In winter, every holiday before dinner, the bears prepared for brawn are set to fight, or else bulls or bears are baited. When the great fen, or moor, which watereth the walls of the city on the north side, is frozen, many young men play upon the ice: some striding as wide as they may, do slide swiftly; others make themselves seats of ice, as great as mill-stones. One sits down, many hand in hand do draw him, and one slipping on a sudden, all fall together. Some tie bones to their feet and under their heels, and, shoving themselves by a little picked staff do slide swiftly, as a bird flieth in the air, or an arrow out of a cross-bow.'

The most gallant of the youthful exercises of these times was that of running at the quintain. This game is of Roman origin. On an upright post, a cross bar was placed horizontally, which turned upon a swivel. A board was nailed to one end of this bar, and a bag of sand to the other. It was the custom to tilt against the board, on horseback, with a spear, or long staff; and it required great dexterity to avoid being struck with the bag of sand as it swung round. At this city exercise, in 1253, some of the household of Henry III., being present, chose to deride the performance of the citizens, who, resenting the affront, beat 'his majesty's servants severely.' For this act of just resentment, the city was fined 1000 marks. The fields were more usually the scene of this pastime; but it was frequently permitted even in the heart of the city. 'I have seen,' says Stowe, 'a quintain set up in Cornhill, near the Leadenhall, where the attendants on the lord of Merrydisports have run and made great pastime; for he that hit not the board end of the quintain, was of all men laughed to scorn.' The greatest feat which could be accomplished at this game was to break the board, and escape the revolving blow of the bag of sand. Whoever did so was accounted for the time 'Princeps Juventutis,' the prince or chief of the

youths. Plot, in his History of Oxfordshire, says, that this game was still to be met with in his time at Deddington; and Dr Kennet, bishop of Peterborough, mentions, that he had seen it at the village of Blackthorn, where he thinks it had been introduced as in London by the Romans, the Roman way lying through that village. At the Easter holidays there used to be a sort of water quintain on the river, where boats supplied the place of horses. The tilter stood with his lance in the prow, leaving the boat to be carried by the force of the stream against a shield suspended from a pole. If he broke his lance and kept his place in the boat, he was loudly applauded; but if, as was more frequently the case, the shock threw him into the water, 'there were upon the bridge, wharfs, and houses, by the river side, standing great numbers to see and laugh thereat.'

Archery became also a favorite game with the citizens, and was very successfully cultivated. It appears at one time, however, to have been supplanted by sports of a less noble order; for there is a writ extant, from Edward III. to the citizens of London, in which he thus reprimands them on the subject:—'the king, to the citizens of London, greeting: Because the people of our realm, as well of good quality as mean, have commonly in their sports, before these times, exercised the skill of shooting arrows, whence it is well known that honor and profit have accrued to our whole realm; and to us, by the help of God, no small assistance in our warlike acts; and, now the said skill being as it were wholly laid aside, the same people pleasing themselves in hurling of stones, and wood, and iron, and some hand ball, foot ball, bandy ball, and in lumberick and cock fighting; and some also apply themselves to other dishonest games, and less profitable or useful, whereby the said realm is likely in a short time to become destitute of archers;' his majesty therefore commanded, 'every one of the said city, strong in body,' to cultivate the art of archery, and to leave off the other games to which they had betaken themselves, under pain of imprisonment. In consequence of this compulsory order, archery became speedily again the favorite amusement, and continued to be so, long after it had ceased to be of importance in a military point of view. In Henry VIII.'s time, it was as much in vogue as at any period of our history. The king himself was fond of it, and used to repair frequently to Mile End to witness the performances of the citizens. Many of the most skilful archers received nominal titles, as the duke of Shoreditch (a title given by the king to one Barlow), the marquis of Clerkenwell or Hogsden, earl of Pancras, &c. In the year 1583 there was a great shooting match, when a vast body of the citizens marched in great pomp, singularly dressed, through the principal streets of London, to Smithfield, the scene of contest. Their attire is said to have been very gorgeous; 942 of them wearing chains of gold. The number of archers that shot was 3000, and their attendants exceeded that number.

Wrestling was another favorite amusement, and the lord mayor and citizens frequently

attended to encourage the youths engaged in this athletic game at Clerkenwell. In the year 1222, at a match of wrestling near St. Giles's, the citizens challenged those in the suburbs and city of Westminster, and beat them, which so irritated the bailiff of Westminster, that he determined on a base and treacherous revenge. He proclaimed a game to be held at Westminster on Lammas day, to which the citizens were invited, and attended. When they had played some time, the bailiff, with a large party, suddenly furnished themselves with arms, and treacherously attacked the citizens, who, being unarmed, fled to the city, where they sounded the alarm, by ringing the common bell. The citizens assembled in great numbers, eager for revenge, when one Constantine Fitz-Arnult, notwithstanding the remonstrance of the lord mayor, who promised to obtain redress, urged the multitude to join him in pulling down the house of the abbot of Westminster, and several others. A few days afterwards, the chief justice of England, Hubert de Burgh, with a great army of men, repaired to the Tower, and, sending for the lord mayor and aldermen, demanded the ring-leaders. Constantine gave himself up, and, with two others, was executed next morning, although he offered 15,000 marks for his life.

As the fields around London came, in the progress of improvement, to be divided and enclosed, the tilting at the quintain, archery, wrestling, and all other field sports, began to decline; and, at the period at which we have now arrived, they have entirely disappeared. In 1514 much discontent prevailed among the populace, on account of the abridgments which were constantly taking place in the theatre of their rural pastimes; and being stirred up by a fellow who went about disguised in the dress of a merry-andrew, calling out for spades and shovels, they resolved to take the work of redress into their own hands. A great multitude of them assembling, armed with these weapons, they soon levelled with the ground all the newly erected fences and enclosures about Shoreditch, Hoxton, Islington, &c. Government censured the magistrates severely for neglect of duty in not preventing this tumultuary proceeding; but that cannot be considered as a proceeding altogether without apology, which the government itself, about a century after, sanctioned by an act of its own as nearly similar (in intention at least) as possible. James I., in the eighth of his reign, granted a commission to several persons of distinction, for the purpose, he states, of stopping the practice of enclosing the ground formerly used for archery, by making of banks and hedges in such fields and closes, as, time out of mind, were allowed to be shot in. It empowers the commissioners to go upon these places, and to view and survey in such grounds next adjoining to the city of London and the suburbs, within two miles compass; and the same to reduce in such order and state for the archers, as they were in the reign of king Henry VIII., and to cause the banks, ditches, and quicksets, to be made plain and reformed. It is scarcely necessary to state, that this commission was never carried into effect; nor would it now be of any avail to en-

quire into the causes which made it inoperative. That it would have been injurious to the public interest, and oppressively unjust to individuals, had it been fully executed, must be sufficiently obvious; but we may be permitted to regret, that it should have been so entirely neglected, and the cultivation of the robust virtues so much disregarded, that a population of about 1,000,000 of souls is now left with scarcely a single open spot on which they can indulge in athletic and manly exercises.

Excluded from the fields, the citizens were forced to turn to such pastimes as the narrower limits of their streets, courts, and squares, and the safety of the passengers, would allow. The proscribed games of the days of Edward III., hand-ball, foot-ball, throwing of bars, cock-fighting, &c., came again into fashion; and hence the skittle-grounds, bowling-greens, tennis-courts, which now form the chief resorts of the London artizans, in their hours of recreation.

It appears, that, even as late as the time of Charles II., the citizens were still allowed, without hindrance, to make the streets the scene of their most boisterous amusements. Sir William Davenant, in a satirical description which he gives of London at this time, in a letter to a friend, says, 'I would now make a safe retreat, but that, methinks, I am stopped by one of your heroic games, called foot-ball, which, I conceive (under your favor), not very conveniently civil in the streets, especially in such irregular and narrow roads as Crooked Lane. Yet it argues your courage, much like your military pastime of throwing at cocks; but your metal would be much magnified (since you have long allowed these two valiant exercises in the streets), to draw your archers from Finsbury, and during high market let them shoot at butts in Cheapside.' The citizens (under favor to Davenant) had some reason to complain, that the streets alone were left them to exercise in; and it was thought prudent probably, to allow their feelings on the subject to die away, before the municipal government interfered to put a stop to what must indeed have been a great nuisance.

The most celebrated holiday of early times was May-day. A may-pole, or shaft, used to be erected on that occasion in the middle of the street, before the church of St. Andrew Undershaft, of such height, that it overtopped the steeple; and hence it was that the parish, which was originally called St. Andrew only, acquired the addition of Undershaft. Chaucer, describing a lofty bragart, says, he bears his head as high as the great shaft of Cornhill.

The arrival of this day of festivity used to be anticipated by the people with such eagerness, that Shakspeare speaks of them as being unable to go to sleep on May-eve. One evil May-day, however, occurred, and never again did May morn come to the citizens of London wreathed in its usual smiles. In consequence of an insurrection which broke out in London, on May-eve, 1517, the sports of May-day were long suspended; nor were they, ever after, more than very partially resumed.

The game in universal use within doors, for many centuries, was that most seductive of all

games of hazard—dice; nor is it possible, that it could have been indulged in to the extent we find it was, without being attended with all the most ruinous consequences of gaming. When Henry Picard had the honor of feasting four kings at his house in Cheapside, in the year 1363, we are told, that after these illustrious guests were gone, he kept his hall for all comers that were willing to play at dice and hazard; and that, in like manner, the lady Margaret, his wife, kept her chamber to the same intent. During the Christmas holidays of 1377 a party of the citizens, to the amount of 130, went a mumming, as it was called (in masks, representing kings, emperors, &c.) to Kennington, in order to pay their respects to Richard, the son of the Black Prince, who was residing there with his mother. After the mummers were introduced to the young prince, they put a pair of dice on the table, and invited him to try his luck with them. The first stake they proposed was a bowl of gold; the second a cup of gold; the last a gold ring; and it was so managed that the prince won every throw. The prince's mother, his uncle, the duke of Lancaster, and many other noblemen who were present, were also successively invited to take the chance of the die for a gold ring; and as certainly as they tried they won. It must be allowed, that there was an air of gallantry in all this; but what can be said for the moral sentiments of an age when false dice could be made the passports to princely favor? The vice of gaming did not confine itself to private society; for we find that, as early as the beginning of the sixteenth century, there were public gaming houses in the city, to which habitual gamblers resorted in great numbers. They were situated chiefly about the Exchange, in the parish of St. Bennet Finke. In 1551 an information was laid against one of these houses in the Exchequer, and five of the parties concerned in it fined 40s. each. James I. seems to have thought that this mode of amusement was as commendable as any other, for he granted a privilege to his groom porter, Clement Cottrel, to license, within the limits of London and Westminster, and two miles thereof, no fewer than forty taverns, 'for honest and reasonable recreation of good and civil people, who for their quality and ability may lawfully use the games of bowling, tennis, dice, cards, tables, nine-holes, or any other game hereafter to be invented.'

PART II.

CIVIL AND MODERN HISTORY.

Early civil government.—The civil government of the city has varied considerably under the successive domination of the Romans, Saxons, Danes, and Normans. In the early period of the Roman sway in Britain, it was entirely military; but the growing importance of the city soon raised it to the rank of a colony, which entitled it to peculiar privileges. The government then became assimilated to that of Rome; the chief magistrate was a prefect, appointed by the parent state, and the inhabitants were considered as Roman citizens.

Under the dominion of the Saxons, and of our

great lawgiver Alfred, the civil institutions of the metropolis, like those of all the rest of the country, appear to have been modelled anew, and in a manner so wise, that they have retained the form then given them through all succeeding ages. It was Alfred who first divided the kingdom into shires or counties, the counties into hundreds, and the hundreds into tythings, in order that, by this subdivision of jurisdiction, peace and order in the community might be the better preserved; and, though our histories are silent as to the extension of this system to the metropolis of the kingdom, the evidence of analogy is strong enough to warrant us in concluding, that it was from Alfred also that London first derived its sheriff (shire-reve), and its division into wards and precincts, under the government of ealdermen or aldermen, and their deputies. When it is considered, likewise, that every search which has been made into the antiquity of these offices has reached back to the Saxon time, and there stopped, all doubt must vanish as to the source from which they sprung. The civil government of London, and that of the country at large, can have had but one common parent—the great, the good, the enlightened Alfred.

The office of sheriff being purely executive, and the aldermen all of equal power, it became necessary, for the completion of the municipal scheme of polity, that there should be one supreme governor or magistrate (the eldest among the aldermen), who might superintend the conduct of the rest, in their respective jurisdictions, preside over them in their collective deliberations, be the organ of the city's will, and, more peculiarly than any other, the guardian of its interests. The officer on whom this power was conferred was styled, by the Saxons, the port-geref or port-reve. The duration of his office was limited to one year; but it does not appear whether he was elected to it by the citizens themselves, or nominated by the king. The Normans retained the port-reve, but appear on some occasions to have associated with him another officer, called a provost. Of the manner in which the duties of the office were divided between them we have no account. No instance of the chief magistracy being thus put in commission occurs later than the accession of Henry II.

In the first year of Richard I., according to Stow (1189), the city 'obtained to be governed by two bailiffs, which bailiffs are, in divers ancient deeds, called shrives,' i. e. sheriffs; and it has been from this hastily inferred, by some writers, that these bailiffs superseded both port-reve and provost. The statement appears to us, however, to mean only that the office of sheriff had been then first split into two; for it is a vulgar error which prevails that it is because of the annexation of the sheriffalty of Middlesex, to that of London, that there are two sheriffs. The division of the office took place some years anterior to that annexation; and the reason for it was, that London is by charter both a city and a county within itself. It is certain that, in the fourth year of Richard's reign, only three years after this supposed innovation of the two

bailiffs, the chief magistracy was vested in one person as usual; for it was in that year that Henry Fitz Alwyn, being then governor or port-reve, assumed the title of mayor, and placed himself first in that long line of worthies who have done honor to the name and office. While Fitz Alwyn lived the mayoralty remained, by a sort of courtesy, vested in his person, and was filled in a manner free from reproach; but on his death, in the twenty-fourth year of his civic administration, the citizens manifested a very proper anxiety to have the office placed on a more constitutional basis. King John was desirous of conciliating their good will at this time, and they obtained from him, without difficulty, a charter, by which the crown conceded to them the liberty of choosing a mayor annually out of their own body, and continuing him at their own pleasure from year to year.

The oppressive conduct of John towards the city at a later period, put its rights in jeopardy for a season, but served in the end to bring about a course of events which placed them on a still surer foundation. In the great charter it was declared, among other things, that the 'city of London should have all its ancient privileges, and free customs, as well by land as by water.'

In the ignominious times of Henry III., and particularly when that monarch was under the influence of the justiciary Hubert de Burgh, the privileges of the citizens of London were repeatedly invaded, in the most wanton manner, by the crown. In consequence of the tumult which we have before related (*Ancient Sports and Pastimes*), for inciting which Constantine Fitz Arnulph and others were executed, the justiciary thought proper to degrade the mayor and aldermen from their functions, on the pretence of their not having exerted themselves sufficiently to preserve the peace. He then transferred the government of the city to a custos or keeper of his own nomination, and selected thirty of the principal inhabitants, whom he obliged to sign a bond for the future good conduct of their fellow citizens. The real character of these measures may be gathered from the fact, that in a short time after the citizens were permitted to purchase back the rights of which they had been thus violently deprived. Stowe says, that the price amounted to 'many thousand marks.' The whole of Henry's conduct towards the citizens of London was, in fact, one continued system of extortion and oppression. After granting them five charters, four of which were merely confirmatory, and the fifth of small importance, he exacted from them, by way of fine for these five grants, a fifteenth of all their personal estates. At another time he obliged them to make him a present of 5000 marks, because they had given a like sum to prince Louis of France, when, along with the barons, they sided with that prince against king John. At Christmas he would take up his abode in the city, and compel the citizens, not only to present him with valuable new years' gifts, but to feast the whole court in the most sumptuous and extravagant manner. Not a single act of misgovernment, whether proceeding from the worst or the lightest of motives, was suffered to pass without being made the pretext for some

new exaction, some new punishment. Twice was the government of the city again taken out of the hands of its own magistrates and transferred to custodes, nominated by the king; and as often was it restored to them on the usual condition of paying handsomely for getting back their own. When such deprivations had not the effect contemplated by royal cupidity, the magistrates were cast into prison, and detained there till presents of plate and money appeased the anger of their sovereign. Neither person nor property was safe from the grasp of the tyrant. Apprehensive, at last, that he would strip them of all they possessed, they collected £10,000 of their money, and deposited it in the treasury of the knight's templars at the New Temple, conceiving that from the sanctity of the place it would there be safe from spoliation. Prince Edward, the king's son, however, immediately went and broke open the treasury, and took away the whole of the money. The citizens could be quiescent no longer; and immediately flew to arms, resolved on asserting their undoubted right of resistance to a reign of plunder and oppression. The barons had already unfurled their banners, and the citizens of London joined them in great numbers. In the battle of Lewes there were 15,000 of them present, who suffered most severely; for, though the king's army was defeated, the Londoners reaped none of the laurels. Prince Edward, having made the city column the object of his principal attack, put it to the route and pursued it with relentless slaughter for four miles; but while thus absent from the field, Simon de Montfort and his brother barons were gaining advantages, which ultimately decided the victory in their favor. The affairs of the king were, however, retrieved by the triumph at Evesham in the following year, and vengeance now fell with a heavy hand on all who had been concerned in this luckless effort for freedom.

A parliament was assembled at Westminster, by which it was enacted, 'that the city of London for its late rebellion should be divested of its liberties, its posts and chains taken away, and its principal citizens imprisoned and left to the mercy of the king.' The citizens endeavoured in vain to propitiate that 'mercy' to which they were thus consigned, by the most humble supplications. The act of parliament had been purposely so framed, that the king might again rob and oppress them to the utmost; and never had a wicked law a more zealous executor. He seized on the estates, houses, and personal effects of many of the chief citizens, and consigned four of the richest to dungeons till they paid enormous sums for their ransom. Nor did he stay the work of spoliation, till the citizens came forward with a general contribution of 20,000 marks, which, owing to the exhausted state of the city, was collected with so much difficulty, that even servants and lodgers were obliged to be included in the assessment. The pardon which it procured from Henry amounted after all to no more than an exemption from farther pillage; for the chartered rights of the citizens Henry still withheld. Four custodes were appointed to rule the city, according to their own discretion; and the citizens were left without

the smallest share in the direction of its affairs. After they had remained three years under this arbitrary sway, the king so far relented, that, by a charter, dated in March, 1268, he remitted all past offences, and confirmed all the ancient privileges of the city, with this important exception, that they should continue deprived of the right of electing their own magistrates. In 1270, however, prince Edward, being appointed governor of the city, prevailed with the king to concede also the excepted privilege, and thus restored the citizens to the full enjoyment of all their ancient institutions.

On the accession of Edward I. Gregory de Rokeslie was mayor of London, and a man of so much talent and consideration, that the king employed him to execute a foreign mission of considerable importance, in preference to many dignitaries in church and state, who solicited the appointment. In order to provide for the government of the city, during the mayor's absence, the king addressed a writ to the corporation, directing them 'to appoint four respectable and discreet persons, whom he might commission, during the mayor's absence, to preserve peace and good order, and to administer justice within the city's jurisdiction.' It would seem that Rokeslie had subsequently fallen into disfavor, for we find that, in his person, the dignity and privileges of the mayoralty were afterwards very grossly violated. In 1286 the mayor, sheriffs, aldermen, and other eminent citizens, were summoned to make inquisition at the tower, before John de Kirkeby, treasurer, and other justices of the king. It was, however, one of the ancient privileges of the city, that the corporation should not be bound to make inquisition in the tower, nor appear there, *pro judicio*, unless on a previous notice of forty days. The mayor, therefore, previous to obeying the summons, resigned the common seal of the city to Stephen Aswy, and other aldermen: and at Barking church, which is on the eastern verge of the city, laid down the insignia of his office. He then entered the tower, not as mayor but as a private individual, and, when an explanation of this conduct was demanded from him, he asserted firmly the rights of the city.

The treasurer immediately declared the office of mayor and the liberties of London forfeited to the king, giving as a reason, the odious fiction, that, as Rokeslie had divested himself of the seal and insignia of office, the city had no longer any chief magistrate. Eighty of the principal citizens repaired to Westminster Hall, to remonstrate against this usurpation, but for their temerity were arrested, and thrown into prison. For four days were this numerous and respectable deputation thus immured, and then, without apology or explanation, dismissed to their homes. The king now appointed Sir Radulph de Sandwich, knight, *custos*, in place of the mayor, with orders at the same time to govern the city according to its ancient customs and liberties. Sir Radulph and Sir John Breton were alternately *custodes*, until the year 1298, when the king allowed the citizens again to choose their own mayor, though not till they had made him a gift of 20,000 marks. But many years were not suffered to elapse before

the citizens had again to complain of infractions of their rights; arising in this instance, however, not from external aggression, but from corruption among themselves. The mayor and aldermen began to assume the right of continuing themselves in office during pleasure; and when they resigned it was but for a season, for the sake of preserving appearances, and to persons of their own appointment. They imposed taxes too upon the citizens, and disposed of the money derived from them, as well as of the whole revenue of the city, in any manner they pleased. From 1315 to 1322 the discontents and upbraidings, which these lawless usurpations occasioned, kept the city in a state of continual ferment. In 1318 articles of agreement were, through the mediation of the king (Edward II.), entered into between the citizens and their magistrates, for a redress of grievances; but, if observed at all, it was only for a short period. No permanent redress followed, and the city still continued a prey to the tyranny of a self-elected few. Edward, at length, on the specious pretext of putting an end to this state of things, took the government of the city into his own hands. Shortly after, indeed, he gave permission to the aldermen and commonalty to elect their own mayor; but a gift of £2000, which they immediately presented to him, told the price at which their rights were redeemed from this double usurpation.

When the attachment of Edward to his favorites, the Spensers, drove his queen, Isabella, and the barons, into rebellion, the citizens of London having evinced a disposition to take part with the latter, the king again seized upon the government of the city, and appointed Walter Stapleton, bishop of Exeter, *custos*. The bishop proceeded accordingly to demand the keys from the mayor; but the citizens, assembling in great numbers around their chief magistrate, not only obliged him to maintain possession of the symbols of authority, but, laying hold of the unlucky prelate, proclaimed him a traitor and cut off his head.

The citizens now declared openly for the queen; seized and executed a number of persons whom they supposed to be her enemies; made themselves masters of the tower; dismissed all the king's officers; and placed both the city and tower at the command of those who were engaged in the righteous cause of freeing the country from the bondage of favoritism. The king, unable to stem the torrent of popular indignation, was defeated, taken prisoner, and deposed. Isabella entered London in triumph, and transferred to her son, Edward III., that crown which his father had so unworthily worn.

In return for the services which the citizens had rendered at this crisis, Edward III., within two months after his accession, granted them a most ample confirmation and enlargement of their corporate privileges. He not only confirmed all the ancient rights of the city, whether founded upon charter or custom, and annulled every innovation upon them that had been made from the earliest times, and in whatever manner; but, in order to prevent any future infraction or suspension of them, on account of any real or pretended misconduct of persons temporarily in-

vested with the administration of the city government, it was expressly declared, 'that for any personal transgression, or personal judgment of any minister of the same city, the liberty of this city should not be taken into the hands of the king, or his heirs; nor a custos be deputed on that occasion in the same city.' Edward continued, throughout his reign, to pay a strict regard to the privileges which he had thus solemnly confirmed and extended. In the days of his dotage, a report prevailed, that it had been proposed in council, to abrogate or suspend them, on account of the part which the citizens took against the celebrated Wickliff; but, though there is evidence of their having opposed the spread of the reformation, there is none of their having received the punishment which their bigotry deserved. A synod had been held at St. Paul's, to pass judgment on Wickliff for the new opinions which he then maintained in religious matters. The apostle of reform made his appearance before the tribunal, accompanied by the duke of Lancaster and the earl marshal of England, as his friends and protectors. In the course of the proceedings, a dispute arose between the duke and the bishop of London, in which the citizens espoused the cause of their spiritual chief so warmly, that the duke and earl marshal thought it prudent to withdraw with the accused. A rumor was next day spread abroad that the duke, out of resentment, had moved in council, that the city privileges should be taken away, the office of lord mayor abolished, and the government of the city entrusted to the earl marshal. The citizens immediately assembled, in a most tumultuous manner, broke open the marshal's prison (the marshalsea), and liberated the prisoners; then proceeded to the duke of Lancaster's palace, in the Savoy, which they plundered, and, missing the prince himself, made prize of his coat of armour, which they dragged along the streets in token of their detestation of the owner. Had no proposition of the kind been agitated in council, such conduct was of itself sufficient to provoke the most exemplary punishment. The duke, however, contented himself with insisting on the degradation merely of the mayor and certain of the aldermen, who appeared not to have exerted themselves with sufficient vigor in quelling the riot.

In the time of Richard II. the reign of rapacity returned, and the citizens of London were again doomed to suffer largely in their property for the preservation of their privileges. In one of the many pecuniary difficulties in which this prince was involved, by his prodigal habits, he made a demand on the city, for the loan of £1000. The city not only refused the money, but when a Lombard merchant, of more exuberant loyalty, offered to make the advance out of his own purse, they chastised him severely for his officiousness. They seem to have been actuated less by a regard for the money itself, than an honest desire to check the profusion in which Richard indulged to a degree beyond all preceding example. The moral censorship which they chose to exercise, cost them, however, dear. Richard called his nobles together, to whom he represented, in indignant terms, the presumption

and maliciousness of 'these Londoners,' and with their concurrence suspended the mayor, aldermen, and sheriffs, from their offices; revoked and annulled the whole of the rights and privileges of the city; removed the courts of law to York and Nottingham; ordered the magistrates to pay into the royal treasury the sum of 3000 marks, and the commonalty the more enormous sum of £100,000 (Rymer's *Fœdera*, Vol. VII. p. 785), and in the mean time committed the mayor and other principal citizens to different and distant prisons, there to remain till these fines were paid. Nor were they even then to expect restoration to favor; for it was decreed, that in future the citizens should have no government of their own; but that the king should appoint one of his knights to be ruler of the city.

It was not long before the king showed a disposition to commute these severe penalties; which seem indeed to have been made thus severe for the very purpose of enabling his majesty the more readily to turn the remission of them to profitable account. The citizens appreciated the character of his majesty's proceedings quite correctly, when, as Stowe informs us, they concluded that, 'the end of these things was a money matter.' They first tried the cupidity of the king with an offer of £10,000 for a restoration of their privileges, but this proposal was not thought worthy of an answer. Soon after, however, they were informed that the king had taken compassion on them, and meant, with his queen, to pay the city a visit, when they would have an opportunity of showing, by the reception they gave their majesties, how far they were deserving of the royal favor. Richard, having set out on this visit of conciliation from his palace at Sheen, was met at Wandsworth by 400 of the principal inhabitants, mounted on horseback, who tendered the humble submission of the city, and besought his majesty's gracious pardon for all its past offences. As he entered the city his coming was greeted with the acclamations and blessings of assembled thousands; in all the streets through which he passed the houses were decorated with cloths of gold, silver, and silk; the conduits ran with the choicest wines; and at every step the most costly gifts were heaped on the monarch and his queen. Crowns and tables and vessels of gold; horses proudly caparisoned: cloths of the richest fabrics; coins, jewels, and precious stones; are enumerated among the offerings made on this occasion by an injured people, to appease the wrath of their sovereign. Well might the citizens imagine, that their pardon was now secure; yet, profuse as they had been, Richard was still unsatisfied. He insisted on having a further gift of £10,000 in money; and not until this sum was collected by an assessment on the inhabitants, and paid into the royal coffers, would he consent to restore the city to its privileges, and remit the fines of 3000 marks and £100,000, which he had originally imposed on the magistrates and commonalty. Such is the compassion of tyrants; such the 'good old times,' which ought to make the citizens of London reckon, as above all price, the constitutional liberty which they now enjoy. Every care was taken not to furnish Richard with any new pretext for interfering with the city; but,

when he could no longer plunder it under disguise of the royal prerogative, he did not hesitate to have recourse to open force. In 1397, without any pretext whatever, he extorted from the city, in its corporate capacity, 10,000 marks, and in the following year levied still larger sums from individual citizens. The tyranny of Richard, however, was now drawing to its termination. The universal disaffection which it had produced encouraged Henry of Bolingbroke to hoist the standard of rebellion; Richard was in an instant hurled from his throne; and those streets which had been so lately paved, as it were, with diamonds at his approach—where he had witnessed far more loyalty than he knew how to appreciate—saw him led captive to the tower, without one token of that commiseration which the fall of greatness usually inspires.

Henry IV. gave the citizens no cause to regret his accession to the throne; while he lived he respected their institutions, and granted them several new privileges highly conducive to the good government of the city, particularly a more absolute control than they had yet possessed over the different gates and posterns. During the splendid reign of Henry V., and that of his son Henry VI., while under the beneficent protectorate of the great duke of Bedford, the government of the city was left, without interference, in the hands of its own magistrates, and never, perhaps, was that government more ably or prosperously administered.

When the turbulent cardinal Beaufort endeavoured, in the absence of the protector in France, to wrest the reins of power from the hands of the deputy protector, the good duke Humphry of Gloucester; he commenced with an attempt to get possession of London by surprise, while the citizens were engaged in the annual festivity of welcoming their chief magistrate into office; but through the vigilant and spirited conduct of the mayor, Sir John Coventry, the design was happily frustrated.

After the assumption of the sceptre by Henry VI., the loyalty of the citizens of London was assailed by many temptations; but they were slow in participating in the party feuds which the misgovernment of this imbecile prince produced. The good service which they rendered Henry on the occasion of Jack Cade's, or rather Richard duke of York's insurrection, as already related appears to have arisen, more from a wish to rid the city of a troublesome guest than from any affection for the prince himself; nor was it till a considerable time after war was openly declared, between the rival houses of York and Lancaster, that they declared for either. In 1458 it was selected as a sort of neutral ground where the chiefs of the adverse parties might meet to treat of terms of accommodation; and the manner in which its magistrates conducted themselves, on the occasion, did singular honor to their impartiality and firmness. From a distrust of each other's good faith, the leaders of both parties came to the conference attended by numerous retinues of armed men; and, to preserve the peace of the city from the imminent danger to which it was exposed by so numerous a confluence of hostile spirits, the mayor, Sir Godfrey

Boleyn (ancestor to the queens, Ann Boleyn and Elizabeth), caused a guard of 5000 well armed citizens to keep watch day and night. So imposing a force kept both the Yorkists and Lancastrians in awe, while it showed that possession of the city was a prize to be hoped for, at present, by neither. After many communings, articles of reconciliation were at length agreed to, and celebrated with abundant solemnity in St. Paul's cathedral; but founded in mutual insincerity and deceit, the parties separated only to appeal anew to the decision of arms.

The citizens now thought it incumbent on them to depart from that line of neutrality which they had hitherto observed. The miseries of civil war were no longer to be averted; and they felt, as all true patriots must feel in such cases, that it was their duty to throw their weight where it might have most influence in bringing these miseries to a speedy termination. The side which the Loudoners espoused was that, in fact, which ultimately triumphed. The duke of York was established on the throne, by the title of Edward IV., and manifested his gratitude to the citizens, for the services they had rendered to his cause, by several important grants, which added considerably both to the jurisdiction and to the revenue of the corporation.

The union of the houses of York and Lancaster, though in its general results auspicious to the nation, was less immediately so to the citizens of London, than to any other portion of the community. The reign of the first of the Tudors, though distinguished by a policy well suited to the character of the times, was stained by many acts of grievous oppression towards the citizens of London. The master passion of Henry's breast was avarice; and, to fill his coffers, he had recourse to modes of extortion quite as odious as those by which Henry III. and Richard II. fed the streams of their thriftless prodigality. He did not, like them, traffic in taking away privileges that he might make money by restoring them; he showed every respect for the ancient and undoubted right of the citizens to elect their own magistrates, but took the liberty at the same time of asserting his own right to determine whether their magistrates did their duty, and to fine them smartly for whatever, in the omnipotence of his discrimination, he chose to brand with the name of malversation. The ingenuity of this mode of spoliation was considerable; since it made the citizens themselves the purveyors, and, the worse the magistrate, the more certain he was to enrich the sovereign. Civic honors became now the greatest of all individual misfortunes; to be elected into office was to be marked out as a victim for royal rapacity. Sir W. Capel, who filled the mayoralty in 1503, was, five years after, on a general allegation of remissness in his official duties, fined £2000; and, because he refused to submit to the iniquitous exaction, was committed a close prisoner to the tower. Sir Thomas Kniesworth, who was mayor in 1505, and his two sheriffs, paid the sum of £1400 to escape a similar fate. Sir Lawrence Aylmer, who filled the mayoralty in 1507, and his two sheriffs, preferred the example of Capel, and followed

him to prison rather than pay the heavy fines which were demanded from them. An alderman of the name of Ilawes was also imprisoned for some pretended misconduct in his official capacity, which affected him so much that he died of a broken heart.

The accession of Henry VIII. opened the prison gates to Capel and the other victims of his predecessor's tyranny; while Empson and Dudley, who had been the chief agents in these schemes of extortion, expiated by their lives the infamy of their employment. With 'a generous magnanimity, not uncommon in the world, the new king gave up the offenders, and profited by the offence; sent the collectors to the scaffold, and kept the money in his treasury.'

During this reign, despotic and sanguinary as it was, the corporate privileges of the city of London were more respected than they had been for many a preceding age. The events of Evil May-day exhibited as remarkable an example of misgovernment as is perhaps to be found in the city annals; but though there was humiliation, and shame, and reproach, in the treatment which the magistrates experienced from Henry on the occasion, it was attended with no resumption, no infringement of charters. The citizens, too, went farther than they had ever yet done, in opposing the pretensions of the crown to levy taxes of its own authority; but with the exception of one stubborn patriot, who was seized and sent to the wars on account of the lead which he took in this opposition, they suffered no harm for their spirited conduct; Henry even withdrew his pretensions, and disavowed the authority by which they had been put forward.

In the reign of Mary, the civil government of the city suffered a temporary suspension during the formidable rebellion of Sir Thomas Wyatt. The Londoners were suspected, and not without reason, of being favorable to the cause of the rebels. The city was, therefore, placed under the military command of lord William Howard, as her majesty's lieutenant; and it was by his spirited conduct in defending it, when attacked by the insurgents, that the rebellion was ultimately defeated.

When Elizabeth succeeded to the throne, she administered the government of the kingdom, in all its parts, so arbitrarily, and yet so well, by the mere force of her personal talents, that the privileges of the city of London, like every other free institution of the country, were lost to the sight, amid the glories of her unrivalled reign. The metropolis was at all times an object of her peculiar care; and, in her own person, she may be said to have at once united the various functions of counsellor, alderman, and chief magistrate. The persons who filled the different civil offices, during her reign, were in general the mere instruments of her will. The power she exercised was unlimited; but tempered with so steady a regard to the interests and honor of her people, as to gain her their unanimous esteem and confidence. The numerous and large demands which were made on the city, during her reign, for men and money, were obeyed with an alacrity, which showed that she had their hearts and purses equally at her command. It is remarked by his-

torians, as a singular circumstance, that such devotion, as the citizens of London displayed to Elizabeth, should not have been rewarded by any new privileges, nor even by a confirmation of those which had been granted to them by her predecessors. The fact, however, is but in harmony with the character of her reign. She ruled well, not by virtue of wax and parchment. She made the days forgotten when charters were worth caring about, by showing how easy it is for a good and wise monarch to make a people happy without them; and she left besides, in her example, what ought to have been of more weight with her successors than 10,000 charters.

James I., with talents for ruling vastly inferior to those of Elizabeth, endeavoured to govern the kingdom on the same absolute principle; but governing it weakly, and ingloriously—exerting power more for its own sake than for any good it could confer—he brought odium on himself, and disaster on his race, by the experiment. The citizens of London, however, were among those who suffered the least from his arbitrary pretensions; for, sensible of the importance of cultivating their good opinion, he treated them at all times with peculiar kindness and respect. He became a member of several of their companies; he honored their public feasts with his presence; he borrowed repeatedly large sums of money from them, which he repaid punctually, though in his general habits careless and profuse; and he extended and confirmed the city's jurisdiction by more than one valuable charter. The local government of the city, which had been in a manner superseded during the reign of Elizabeth, now resumed its functions; and, in one remarkable instance, we find it even opposing itself to the general government of the sovereign.—After James had published his Book of Sports, by which a general toleration was given to break the Lord's day, his majesty happening one Sunday to drive through London during divine service, in contempt of one of the city's regulations, the lord mayor (the Right Hon. George Bolles) had the spirit and firmness to order the king's carriages to be stopped. 'What!' exclaimed James, swollen with rage, 'I thought there had been ne'er a king in England but myself.' He immediately despatched a messenger to the lord mayor, with his royal commands to let the carriages pass. 'While it was in my power,' replied the worthy magistrate, 'I did my duty; but, that being taken away by a higher power, it is my duty to obey.' It is said that James had the good sense to do justice to the spirit which dictated this conduct, and thanked the mayor for knowing the duties of his office so well.

Charles I., acting upon his father's extravagant notions of the kingly prerogative, while the advancing intelligence of the age was daily rendering them more and more intolerable, the patience of the people became at length exhausted, and they had recourse to arms to re-assert their violated liberties. In this necessary effort, the city of London, which had suffered more than any other part of the kingdom from the oppression of the king, took a leading and important part; from first to last it was the life and soul of the independent cause; and, but for its perseverance,

firmness, and sacrifices, it seems more than probable that the nation would, at this time, have sunk at the feet of despotism. From being so directly under the eye of the star chamber and high commission courts, it had opportunities of witnessing too many of those 'fantastic tricks,' which make 'even angels weep,' to abandon easily the attempt to be free.—It had seen its most venerated institutions set at naught; martial law substituted for civic rule; trade and industry made matters of privilege and monopoly; the property of the citizens plundered by illegal exactions; the richer sort thrown into prison when they refused compliance, and the poorer dragged to serve in the army and navy. It had seen the king repenting himself of these severities, when he found them less productive to his treasury than he expected, and by a formal charter (18th October, 1638) confirming and restoring to the citizens 'every right, immunity, franchise, and privilege, which they had ever enjoyed;' and yet, immediately after, violating all of them as wantonly and perfidiously as ever. The sword of the lord mayor was at last ordered to be taken from him; and four of the aldermen were committed to different prisons, because they refused to be the instruments of exacting from their fellow-citizens a forced loan of £200,000. Submission had now reached its limits; and, in turning the sword of the city against the tyrant who demanded its surrender, the citizens did but their duty. The attempt, it is true, was far from ending in the attainment of that liberty and security for which the citizens took the field; for, after years of anarchy, they but exchanged one despotism for another—that of the king for that of the commonwealth; yet, though defrauded of the fair harvest which promised to crown their labours, the spirit is not the less to be commended which made them foremost in the fight when liberty seemed the prize. The destruction of the monarchy formed no part of the views which guided the more rational and respectable portion of the London citizens—they desired only to see it restored to a constitutional basis. When parliament passed the 'act for the eheredation of the royal line, and the abolition of monarchy in the kingdom,' Sir Abraham Reynardson, the lord mayor, refused to proclaim it in the city; and, for doing so, was degraded from his office, fined £2000, and committed to the tower.

The last to submit to the usurpation of Cromwell, the citizens of London were also the first to co-operate with Monk in his plans for the restoration of the exiled family. They made him the major-general of their forces, for the purpose of adding to his weight at this important crisis; and the lord mayor, Sir Thomas Adams, formed one of the deputation which went over to Breda, to invite the return of Charles II. The restored monarch evinced at first a just sense of the claims which the city had established to his kindness and protection. He granted them a charter, since called the Great Charter of Confirmation, in which all the privileges, liberties, rights, and customs, granted to the city by former sovereigns, were carefully recited, and now solemnly confirmed, 'in return for the late tokens of loyalty discovered in the said city

towards his person and government, by their effectual aid to restore him to the crown.' The gratitude of Charles, however, was but of brief duration. Neither the unhappy fall of his father, nor his own misfortunes, nor all the lights of the age, had been able to purify his nature from that love of arbitrary power which formed the hereditary vice of his race. Scarcely had the shouts which welcomed his return ceased to vibrate in the ear, when he entered on a similar career of misgovernment to that which had led his predecessor to the scaffold. Again were the citizens of London driven, by the course of events, to stand forward in defence of the rights of the subject; and, had the nation only supported them as well on this as they had done on former occasions, our history might have been spared the 'disgrace' which, in the opinion of an enlightened statesman, was cast on it by the impunity with which Charles II. was suffered to pursue his career of tyranny to its end.—Fox's Life of James II. When, in 1681, parliament was dissolved because of its refusal to proceed with the supplies till the bill for the exclusion of the duke of York from the throne, on account of his Catholic tenets, was passed, the citizens of London assembled in common hall, and, after voting thanks to their representatives for the share they had in this refusal, they resolved, 'by God's assistance, to stand by them with their lives and fortunes; being confidently assured, that the said members for the city will never consent to the granting any money or supply, till they have effectually secured them against popery and arbitrary power.' The same sentiments were echoed in the resolutions of other corporate bodies, in all parts of the country; yet when Charles, rather than accept of supplies on such terms, resolved to govern without a parliament at all, and became a pensionary to France for the means of supporting his state as an English monarch, no general effort was interposed to save the country from this declension into absolute despotism, and the citizens of London were left to be overwhelmed by the vengeance of the court, for the single example which it had presumed to offer of resistance to its will. 'The city of London,' says Mr. Fox, 'seemed to hold out for a certain time like a strong fortress in a conquered country; and, by means of this citadel, Shaftesbury and others were saved from the vengeance of the court. But this resistance, however honorable to the corporation who made it, could not be of long duration. The weapons of law and justice were found feeble when opposed to the power of a monarch, who was at the head of a numerous and bigoted party of the nation, and who, which was most material of all, had enabled himself to govern without parliament.' The court first succeeded in wresting from the livery of London, partly by corruption and partly by violence, the election of their mayor and sheriffs. As soon as it had thus obtained unlimited control over the administration of justice—the power of packing juries who would decide as they were ordered, and of nominating magistrates who would shrink from the execution of no iniquity—it began to maltreat and plunder, under color of law, all who had shown

themselves most forward in asserting the rights of the people. A fine of £1000 had hitherto been thought enormous; but such was the thirst of revenge which now animated the court party, that the fines imposed by venal judges, for what venal juries chose to pronounce offences against law, were increased to £10,000, £40,000, and even £100,000! Alderman Pilkington, and two other citizens, Colt and Oates, were fined £100,000 each, for speaking disrespectfully of the duke of York; Sir Patience Ward, who was lord mayor in 1681, was found guilty of perjury because he had sworn that he did not hear the words ascribed to Pilkington; nor could the just and mild principles which characterise the criminal law of England, protect even the lives of such men as Sidney, Russel, and Armstrong, 'when the sacrifice was called for by the policy and vengeance of the king.' Incredible as it may seem, something more was still wanted to complete the schemes of tyranny which the court was now triumphantly pursuing. It had got into its hands, as we have seen, the appointment of the mayor and sheriffs; but as the annual election to these offices, according to the chartered usages of the city, might, in some evil hour, give an opportunity to the disaffected to contest the power of nomination with success, it was decided to be necessary that the corporate privileges of the city should be abrogated entirely, and the government of it rendered simply and absolutely dependent on the king.—The citizens were served with a writ of quo warranto, calling upon them to show that they had not forfeited, by certain acts of malversation imputed to them, the various rights which the charters of a long line of sovereigns had conferred on them.

In the pretexts employed to obtain the cloak of a judicial decision, for this predetermined extinction of the corporation, a good deal of wicked ingenuity was displayed. When the crown, said the king's lawyers, conferred the privileges of a corporation on the citizens, they were of course intended to operate for the good of the crown; if employed for a different purpose, it was but right that they should revert to it; and that they had been so, was clear from the resolution which they had published after the dissolution of the parliament in 1681, to support, 'with their lives and fortunes,' the members who opposed the king. The charters of the city, moreover, had not conferred on it the right of taxing the lieges; and yet it had, of its own authority, imposed certain tolls on all goods brought thither for sale. The corporation had, in short, both scandalised the king's government and oppressed their fellow-subjects; and 'as the common council was the body of the city chosen by all the citizens, so they were all involved in what the common council did.' The council for the city had one invincible answer to make to all these arguments, namely, that whatever might be the character of the resistance which the corporation of 1681 had offered to the king, and however illegal the tolls which that or other corporations had imposed, yet they were but personal misdemeanours; and by the celebrated provision of Edward III. confirmed by every succeeding sovereign, it had been expressly declared, that 'the liberties of the city

could not be taken into the king's hands for any personal trespass or judgment of any minister of the said city.'

Defence, however, was unavailing, where judgment had previously been signed. In Trinity term, 1683, the court of king's bench declared it to be their opinion, that the malversations of the common council must be considered as acts of the whole city; and that the two points set forth in the pleadings of the crown were just grounds for the forfeiture of the city's charter. The attorney-general did not, however, enter up judgment immediately; in the hope, as it would seem, that, when the corporation saw their fate thus dependent on the nod of the king, they might be induced to come forward with some offer of compromise, by agreeing to which, the crown might probably gain more than it could hope to accomplish by the absolute resumption of the city's rights. The court party in the city, with a ready perception of what was expected from them, immediately called a court of common council, where they succeeded in procuring the adoption, by a considerable majority, of a petition to the king, in which the corporation fully acknowledged the misgovernment ascribed to them, solicited pardon, promised constant loyalty and obedience for the future, and placed themselves entirely at the disposal of his majesty.

The lord mayor, at the head of a numerous deputation from the council, presented this petition to the king. When Charles had read it, he handed it to the lord keeper North, desiring him to state the conditions on which his majesty would accede to the prayer of the petitioners. The conditions were—1. That no lord mayor, sheriff, recorder, common serjeant, town clerk, or coroner of the City of London, or steward of the borough of Southwark should be capable of, or admitted to, the exercise of their respective offices, before his majesty had approved them under his sign manual. 2. That if his majesty should disapprove the choice of any person to be lord mayor and signified the same under his sign manual, the citizens should, within one week, proceed to a new choice, and, if his majesty should also disapprove of the second choice, that he might himself nominate the lord mayor for the year ensuing. 4. That the lord mayor and court of aldermen might, with the leave of his majesty, displace any alderman or other officer of the city. 5. That on the election of an alderman, if the court of aldermen did not approve of him, the ward should be obliged to choose again; and, if the second choice was also disapproved, that the court might themselves fill up the vacancy. And 6. That all justices of the peace, within the bounds of the city, should be appointed by the king's commission; in other words, that no officer of the city should be ex-officio a justice. 'If these regulations are made,' continued the lord keeper, 'his majesty will not only stop this prosecution, but confirm your charters in all other respects. The term, my lord mayor, draws towards an end, and Midsummer is at hand, when some of the officers used to be chosen; whereof his majesty will reserve the approbation. It is, therefore, his majesty's pleasure that you return

to the city, and convene the common council, that he may speedily know your resolutions thereupon, and give his directions accordingly. That you may see the king is in earnest, and the matter is not capable of delay, I am commanded to let you know, that his majesty has given orders to his attorney-general to enter up judgment on Saturday next, unless you prevent it by your compliance in all these particulars.'

On the return of the deputation to the city, a court of common council was immediately summoned to consider of the king's propositions. The debates which it produced were warm and tempestuous. Numbers there still were devotedly attached to liberty, who declared, that they would rather sacrifice all that was dear to them, than consent to such slavish conditions. 'If we must,' said they, 'sink under oppression; let us at least have the consolation left us, that it was by no act of our own that we lost our birthright; that we became slaves not through choice, but by force.' Other sentiments, unhappily, prevailed with a larger party of the council; and the degradation of the city was consummated, by the consent of a majority of eighteen, to all that the king required. Charles appears, however, to have disdained the triumph he had achieved; for to the surprise and mortification of the servile crowd, who had thus proclaimed themselves his willing slaves, he refused to set his seal to the arrangement, and preferred entering up the judgment which had been pronounced on the *quo warranto*. It has been generally supposed, that he followed this course from a wish to heap degradation and insult on the city; but the inference is superficial and improbable. Charles had no cause to be displeased with his own friends and partizans—with the majority who voted for submission to his terms—and it was on them alone all the ignominy of such treatment fell; while, to those who opposed concession, it must have been a source of just pride to witness the shame and confusion of its advocates. The circumstance which in all probability determined the conduct of Charles, was the smallness of the majority by which the acceptance of his propositions was carried; for, while so numerous a party remained hostile to the pretensions of the crown, any attempt to conduct the government of the city, through the medium of the citizens themselves, must have been attended with perpetual embarrassment, and not altogether exempt from the chance of utter failure.

The judgment on the *quo warranto* having been entered up, the king, by a commission under the great seal, appointed the creatures of the crown who then filled the offices of mayor and sheriffs, to hold the same during pleasure; and nominated another individual of the same cast to the recorder, in place of Sir George Treby, who, as counsel for the city, had advocated its privileges with honesty and zeal. The fate of London spread a general alarm among the corporations throughout the country; and in the vain hope of escaping the general sweep which they supposed to be meditated, by a spontaneous submission to the will of the king, most of them resigned their charters into his hands, with a request rather slightly expressed, that his majesty

would be pleased to re-model them in such manner as he might in his wisdom think meet. The king accepted the surrenders; but, in all the new charters which he gave, reserved to the crown the nomination to every place of power and profit, and for the few indifferent privileges which they contained, exacted large sums.

The duke of York, by whose advice the gay and dissolute Charles chiefly acted in these oppressive measures, at length succeeded him in the throne; and being now enabled to give full scope to his inclinations, he speedily filled up that measure of iniquity which led so deservedly to his own downfall, and to the final expulsion of his house. One of the earliest victims of the tyranny of James II. was alderman Cornish, who, in discharging his official duties, when Sheriff, in 1680, had particularly exerted himself in the detection and prosecution of what was called the Popish plot, the reality of which, his majesty, with a view to the introduction of popery, was now using every possible endeavour to discredit. Cornish was now accused of being concerned in the Ryehouse plot, for which lord William Russel suffered, and on suborned testimony, to which no man gave serious credit, was found, by a packed jury, guilty of high treason. That the vengeance inflicted on this ill-fated gentleman might inspire the greater terror in the community, the merciless Jefferies ordered that he should be hanged, drawn, and quartered, not at the usual place of execution, but in front of his own door, at the end of King Street, Cheapside. On the 23d of October, 1685, the citizens beheld with horror and dismay this barbarous sentence literally carried into execution. James had no sooner glutted his monstrous revenge, than conscience appears to have begun her upbraidings. In the memoirs of his life, which Dr. Clarke has compiled from James's own papers, we read that 'although Cornish had been a furious stickler in these times, and that no one doubted his guilt, yet when his majesty heard that one of the witnesses against him did not so positively reach to what is criminal in the case, he was troubled that the least formality in the law should have been infringed for his security, and therefore declared he was sorry he had suffered, and (marvellous compassion!) ordered his quarters to be taken down, and given to his relations to be decently buried.' *Life of James*, vol. 1. p. 45. Never, perhaps, were guilt, confusion, and shame more apparent than in these few lines. At first, we are told 'no one doubted his guilt,' and next, that his majesty had 'heard that one of the witnesses (as there were but two, the failure of the one destroyed the whole case), did not so positively reach to what was criminal in the case.' And so for want of this slight 'formality,' the mere want of evidence that he had done any thing 'criminal,' any thing meriting punishment at all, far less a fate so cruelly aggravated as that which befel him, is the conscience of the tyrant 'troubled!' A succeeding age did more justice to the real character of this transaction, when it pronounced the execution of Alderman Cornish to be among the most odious cruelties of James's reign, restored his estate to his family (for, with all his compassion, James

scrupled not to beggar the children whom his cruelties had made fatherless); and condemned the witnesses against him to be lodged in remote prisons for the remainder of their lives.

When at length the nation rose, as one man, to expel their oppressor, James became as mean and pitiful in his concessions, as he had been proud and arrogant in his usurpations. Among other steps which he took to avert the impending ruin, he directed that intimation should be made to the lord mayor and aldermen of the city that he had resolved 'out of 'tender regard' merely) to restore to them, by a new charter, all the ancient franchises and privileges on which they had been deprived by the decision of the quo warranto. He sent at the same time for Mr. William Kyffin, a merchant of great weight and eminence in the city, who still mourned the loss of two grandsons, who had been executed for the rebellion in the West, with circumstances of peculiar cruelty; and in the hope of conciliating him, by such honors as it was yet in his power to bestow, told him, that 'he had put down his name as an alderman in the new charter.' 'Sir,' answered Kyffin, 'I am a very old man; I have withdrawn myself from all kind of business for some years past, and am incapable of doing any service, in such an affair, to your majesty or the city.—Besides, sir,' continued the old man, fixing his eyes stedfastly on the king, while the tears ran down his cheeks, 'the death of my grandsons gave a wound to my heart which is still bleeding, and never will close but in the grave.'—(Hughes's Letters.)—O bitter reproach! O most just retribution! Not even the name of this venerated sufferer, however, nor the names of all the city sufferers from James's tyranny together, could have sufficed to obtain respect for a charter thus meanly tendered in the hour of desperation. The time for reconciliation and compromise had for ever passed. The citizens of London—the whole nation—saw safety only in revolution; James was forced to abdicate the throne which he had disgraced, without a single arm being raised in his defence; and the vacant diadem was transferred to the Prince of Orange and his consort, on terms by which liberty and happiness were once more restored to the country; and the relative rights of sovereign and subject placed on a surer and more lasting basis than they had ever yet been.

One of the first acts of the first parliament of William the third, was to do justice to the city of London. The judgment given on the quo warranto, by this was pronounced to be illegal and arbitrary; every right, charter, and indemnity, anciently conferred on the city, was restored; and all grants prejudicial to them, which had been made by the two last sovereigns, were declared null and void. 'Glorious,' indeed, this revolution deserves to be called by the citizens of London. Nearly a century and a half have since elapsed, and during all this period they have as freely enjoyed as they have spiritedly maintained their municipal privileges.

The citizens were not insensible to the benefits thus gained, and lost no opportunity of showing how ready they were to support a government founded on the principles of liberty. William

having suppressed the rebellion in Ireland, and consolidated his government at home, resolved, in 1691, to pay a visit to his Dutch dominions, leaving his illustrious and amiable consort, queen Mary, regent. Scarcely had his majesty quitted the British shores, however, when a report was raised by the jacobite faction, that the French were on the point of invading England with a large force, in order to restore the exiled James. No circumstance could have been more fortunate for the house of Orange, since it proved its stability on the throne; for the threats of invasion excited no alarm, but much preparation. The city of London increased its military force, and, well knowing that money was the sinew of war, the common council voted an advance of £200,000 to the queen.

So much had the city suffered from a popish monarch, that the strongest prejudices existed at this time against the Roman Catholics, so that in the years 1697, 1699, and 1700, proclamations were issued, fixing their residence within certain limits, and empowering the magistracy to seize all arms and ammunition found in their possession. But no attempts were made in London to disturb the public tranquillity, although the violence of party was often manifested in a strong degree. An instance of this occurred in 1710, when the intemperate Dr. Sacheverell attempted to revive the principles which had been the cause of hurling the Stuarts from the throne. The Dr. preached two sermons, in which he censured the act of toleration, and vindicated the doctrine of non-resistance to the government to the utmost extent. The house of commons took up this business, and after declaring his sermons to be 'malicious, scandalous, and seditious libels,' appointed a committee to draw up articles of impeachment against him. The house of lords, however, thought the matter had been treated too seriously, and, although they condemned Sacheverell by a majority of seventeen voices, he was merely restrained from preaching for three years. During these proceedings the Dr., who was of the high church party, became a great favorite with a considerable portion of the populace of London, who considered him as the champion of the established church, and suffering for its sake. They conducted him in triumph from Westminster Hall to his house, and testified their zeal in his cause, by attacking the dissenting meeting-houses, particularly the chapel of the eccentric Daniel Burgess, in New Court, Carey Street. They tore down the pulpit, the pews, and benches, and made a fire of them in Lincoln's-Inn-fields.

The accession of the house of Brunswick to the throne was hailed in the metropolis and through Great Britain as the last act of the great drama of the revolution; for, although queen Anne was popular, it was known that in her latter days she wavered as to her successor, and, could she have possessed sufficient power to influence the appointment, it was believed she would have recalled a member of her own family. No sooner had George I. arrived than he received the warm congratulations of the city, and in his answer to their address complimented them on their importance, and assured them that he

would take their privileges and interests under his particular protection. On the ensuing lord mayor's day, the king and the royal family dined in the city; on which occasion he created the lord mayor, Sir William Humphreys, a baronet, and gave £1000 to be applied for the relief and discharge of poor people imprisoned for debt.

The rebellion of 1715 excited some sensation in the metropolis, but did not in the slightest degree affect the citizens, who, in an address to his majesty, declared their unalterable adherence to the royal person and government. In 1721 the plague raged so furiously at Marseilles, that strong measures were taken by the legislature to prevent its being introduced into this country. One of the clauses in the law enacted, that 'every infected place should be enclosed and shut up by a line or trench, in order to cut off all communication, and that all persons endeavouring to escape from the said infected place, without having regularly performed quarantine, should suffer death as felons, without benefit of clergy.' The corporation of the city, ever watchful of the privileges of their fellow citizens, presented a petition against this bill; and, although unsuccessful in the first instance, they procured its repeal in the following year. Nor was it to matters of a local nature that the city limited its interference, wisely considering every infringement on the liberties of any class of individuals, as an attack on the liberties of all.

With this feeling, in the year 1733, the court of common council resisted the extension of the excise laws, by Sir Robert Walpole. On the day fixed by the minister to propose the obnoxious measure, the citizens in great numbers thronged the avenues leading to the house of commons, when Sir Robert, with an indiscretion not usual with him, insinuated that the multitude who had assembled had been gathered together unfairly, and applied to them the legal term of 'sturdy beggars.' The patriotic Sir John Barnard, at that time one of the members for the city, resented with becoming spirit this attack of the minister. 'The right honorable gentleman,' he said, 'talks of sturdy beggars: I do not know what sort of people, Mr. Speaker, may now be at your door, because I have not been lately out of the house, but I believe they are the same sort of people that were there when I entered the house; and then, sir, I can assure you, that I saw none but such as deserve the name of sturdy beggars as little as the right honorable gentleman himself, or any gentleman whatever.' When, finally, the sheriffs, who were accompanied by the chief citizens in 200 carriages, presented the petition of the lord mayor, aldermen, and common-council, against the bill, at the bar of the house; the minister took the alarm, and, perceiving the unpopularity of the measure, abandoned it.

In the rebellion of 1745 the city of London again exhibited its firm attachment to the protestant succession. Addresses were presented by the corporation, and by the merchants of the metropolis, who proceeded, in 140 coaches, to declare their fidelity to the throne. The military preparations were prompt and vigorous; and when the duke of Cumberland, after putting

down the rebellion, returned to London, he was presented with the freedom of the city in a gold box.

Ready, however, as the citizens were, at all times, to support the government, and to sanction every measure consistent with the honor and interests of the country, they never ceased to watch over their own liberties. A proof of their vigilance in this respect occurred in the year 1749, when the government suspecting that an attempt would be made to rescue two men, who had been principals in a riot in the Strand, ordered a party of the foot-guards to attend at Holborn Bars, and assist the civil authorities in guarding the prisoners to Tyburn. The sheriff, Mr. Janssen, knowing that the constitution and usages of the city precluded the interference of the military, civilly dismissed the guard, and, heading his own body of police, secured the due execution of the law without molestation.

The early part of the reign of George III. was agitated by the well-known proceedings against Wilkes, who was committed to the tower on a warrant (afterwards declared to be illegal) from the secretary of state, for a libel in No. XLV. of the North Briton. On being liberated, by the decision of lord chief justice Pratt in his favor, Mr. Wilkes brought an action against the under secretary for illegally seizing his papers, and obtained £1000 damages. He afterwards reprinted the obnoxious No. of the North Briton, when the house of commons expelled him, and a prosecution was commenced against him in the court of king's bench, in which the publication was adjudged a libel, and, on his not appearing to receive sentence, he was outlawed. The public now manifested a strong feeling in favor of this demagogue; and, when the house of commons ordered the libellous number of the North Briton to be burnt by the common hangman, the populace assailed the sheriff and city officers, who attempted to carry the order into effect at the Royal Exchange, and broke the glass of sheriff Harley's carriage. They also snatched the libel from the flames, and proceeded to Temple Bar, where they made a bonfire, into which they threw a large jack boot, in allusion to lord Bute, then prime minister.

In 1768 Wilkes, who had retired to France, suddenly made his appearance on the hustings at Guildhall, at the general election, and offered himself as a candidate to represent the city; failing in this object, he determined to stand for the county of Middlesex, and was elected by a large majority; when his partizans, not having the discretion to enjoy their triumph in quiet, committed several outrages. Mr. Wilkes had been committed to the king's bench prison, on a sentence against him for the libel. On the 10th of May, when the parliament met, an opinion prevailed that he could not be detained, and a great concourse of people assembled, ready to convey him in triumph to the house of commons; but finding there was no prospect of his liberation they became very clamorous. This alarmed the Surry magistrates, who called in the aid of the military and read the riot act. The mob, incensed at what they deemed an unnecessary interference, assailed the soldiers with stones and brick-bats; when the latter, who were principally

Scotchmen, became irritated, and one of them, wantonly discharging his musket, shot Mr. Allen, the son of a livery stable keeper, at the door of his father's cow-house. The soldiers were afterwards ordered to fire, and upwards of twenty persons were killed and wounded.

The death of Allen, who had not participated in the riot, excited a great sensation, not only in the metropolis, but in 'the country; and the celebrated Horne Tooke strained every nerve to bring the offender to justice, but without effect.

The house of commons, as we have seen (article GREAT BRITAIN) now annulled Wilkes's election, and the Middlesex freeholders, twice in the course of six weeks, re-elected him. A third writ was issued, when colonel Luttrell was induced to offer himself; and although his rival was again returned, by a majority of 850 votes, the house of commons declared the colonel the sitting member. Petitions were presented from the city of London, as well as from the inhabitants of the county, against these proceedings, but without effect, until the great question as to the legality of general warrants was decided in the court of common pleas, in November 1769, by Wilkes obtaining a verdict of £4000 against the earl of Halifax then secretary of state. In the month of April following, the former who had previously been elected alderman of the city was liberated; on which occasion the metropolis was illuminated. His triumph was not yet, however, complete, and it was not until after a long struggle that the legality of his seat in the house of commons was admitted, and the proceedings against him ordered to be erased from the journals.

The tumults of this period of the history of London were not always of a political nature: the Spitalfields weavers, who felt aggrieved by the introduction of foreign manufactures and the low rate of wages, had long exhibited symptoms of discontent, and on more than one occasion been guilty of excesses. Towards the close of the year 1769 these proceedings became more serious, and a party of the guards was called in to seize some of the ringleaders, at the Dolphin public-house. On entering the house, the weavers, who were armed, attacked the soldiers, one of whom they killed; the soldiers returned the fire, killed two of the rioters, and took four others prisoners. Two of these were capitally convicted; and government deeming it necessary to display its rigor, in order to deter future offenders, by an exemplary punishment, ordered them to be executed near Bethnal Green church. The sheriffs, doubting how far they were authorised to deviate from the sentence pronounced in the Old Bailey, sent several memorials to the minister, and the convicts were respited until the opinion of the judges could be taken on the subject, when, they having declared, that 'the time and place of execution are in law no part of the judgment, and that the recorder's warrant was a lawful authority to the sheriffs as to the time and place of execution,' the criminals were executed at the place fixed upon by the government.

Two other events occurred at this period, which strongly marked the watchfulness of the city magistrates in preserving the liberties of the

citizens. During the riots in Spitalfields, the soldiers had passed through the city unmolested, until the commanding officer on one occasion marched his men to the sound of the drum and fife through all the public streets. The patriotic Beckford, then lord mayor, immediately wrote to lord Barrington, the secretary of state, to request an explanation, which was promptly and satisfactorily given. 'I am very clear in opinion,' said his lordship, 'that no troops should march through the city of London, in the manner described by your lordship, without previous notice given to the lord mayor.' His lordship added, that he would take such measures as he trusted for the future would 'prevent any just offence being given to the city or its chief magistrate.' In later times, however, the city has become less scrupulous in this respect, though the right to exclude the military remains undisputed.

In 1771 the city made a strong effort to oppose the authority of the house of commons in cases of breach of privilege. Messrs. Wheble and Miller, the printers of two newspapers, had been ordered to the bar of the house, on a charge of having violated its privileges, by the publication of reports of parliamentary proceedings. The serjeant at arms failing in taking them into custody, a royal proclamation was issued, offering a reward for their apprehension. Mr. Wheble was then taken by a journeyman printer, and brought before Mr. Wilkes, the sitting alderman at Guildhall, who, not recognising the authority of the proclamation, discharged Wheble, having first bound him over to prosecute the man who had arrested him. Mr. Miller was arrested at his own house, by a messenger from the house of commons; but he gave him in charge to a constable, and had him carried to the mansion-house, where the lord mayor, Brass Crosby, esq., and the aldermen Wilkes and Oliver were sitting. The serjeant at arms attended, and in the name of the house of commons demanded Miller and the messenger. The lord mayor refused on the ground that the warrant was illegal, not having been indorsed by a city magistrate, and ordered the messenger to enter into recognisances to answer the assault at the next sessions in Guildhall. The house of commons, indignant that the city should thus beard its authority, ordered the lord mayor and the two aldermen to appear before them. Wilkes refused to attend, unless he was summoned as member for Middlesex; but the commons, not having acknowledged the legality of his election, would not do this, and, in order to avoid any farther contest with a man who had so often foiled them, adjourned over the day fixed for his appearance. The aldermen Crosby and Oliver appeared to the order of the house, and were committed to the tower, where they remained until the prorogation of parliament.

The citizens, however, so far approved of the conduct of their magistrates, that a committee was appointed to procure their liberation by an appeal to the courts of law, but the judges refused to interfere with the privileges of the house of commons. On their liberation, they were saluted at the Tower gate by a salute of twenty-one guns, and were escorted to the Mansion House by the artill-

lery company and several of the most eminent citizens in fifty-three coaches. Silver cups were voted by the common council and livery to these public spirited magistrates; and the printer who had arrested Mr. Wheble was tried at Guildhall for the assault, when he was sentenced to two month's imprisonment in the compter, and to pay a fine of one shilling.

In a subsequent year the city made a formidable opposition to the obnoxious system of impressment, but the decision of lord Mansfield was not in their favor, although his lordship vindicated the measure rather on the principle of necessity than of law.

It is to be regretted, that, while the city magistracy manifested such watchful jealousy of their liberties, a party of misguided men should be guilty of such acts of intolerance and outrage as disgraced the metropolis in the year 1780. We refer for the details of them to our article GREAT BRITAIN. Dr. Johnson, in his Letters to Mrs. Thrale, when giving what he calls a journal of 'a week's defiance of government,' unhesitatingly states that if the mob had attacked the bank 'at the height of the panic,' on Tuesday instead of the Wednesday night, 'when no resistance had been prepared, they might have carried irrecoverably away whatever they had found.' Wilkes headed the party who drove the rioters away, and this was the first effectual resistance they encountered.

Certainly the ministers had become so obnoxious, that scarcely any measure that originated with them could give satisfaction. War is seldom unpopular while it is successful, but the contest with the colonies in America was not only considered as impolitic, but the ill success which attended it generated a mass of discontent in the metropolis, which manifested itself on all occasions. Strong remonstrances were presented to his majesty from the city in 1781, deprecating all further perseverance in 'a system of measures which had proved so disastrous to the country,' and intreating him to dismiss, from his presence and councils, all those persons who had deluded him into an 'unfortunate and unnatural war.' It has been the maxim of the citizens to speak their sentiments boldly, and to bear to the throne their grievances, but they have still always been foremost in loyalty to the sovereign, and in support of the government when it required their aid.

Many opportunities have occurred in which they have manifested both. When, in the year 1786, the wretched maniac Margaret Nicholson, attempted to stab our late venerated sovereign, the citizens of London were the first to express their congratulations on his majesty's escape; and three years afterwards, when the king had recovered from the dreadful malady with which he had been afflicted, the metropolis was one scene of gaiety and joy; when the first moments of exultation had subsided, they crowded to the altar, and joined their majesties in returning thanks to that Being who has the hearts of kings in his keeping, and who chasteneth those whom he loveth.

The early appearances of the French revolution were hailed with transport in a country

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which had long been considered as the natural and political enemy of France; but as, in times of political effervescence, some ardent minds will overstep the bounds of discretion, it was not to be surprised that a portion, even of the population of London should sigh for institutions they had been led to believe more liberal than their own. Political associations were formed, which, at a less critical moment, would have excited no alarm; and individuals were prosecuted, whose plans might have been sufficiently watched and defeated by a vigilant police, yet it is difficult to censure the government even for an unnecessary vigor in preserving the country from the horrors of a revolution. The prosecution of Tooke, Hardy, Thelwall, and Bonney, in 1794, on a charge of high treason, was, perhaps, ill-advised, though the result proved a triumph to civil liberty; for it was on this trial that the doctrine of constructive treason, which, in a darker period of our history had sent many to the block, was overturned by the eloquence of an Erskine and a Gibbs. A less exceptionable mode of counteracting the spread of sedition was afterwards adopted by the formation of loyal associations. The dread of an insurrection in this country, when the scenes, which had been acted in Paris, might be re-acted in the British metropolis, now excited alarm, and a meeting was held at Merchant Tailors' Hall, of 3000 of the principal merchants, bankers, and traders of the capital, who agreed to a declaration of attachment to the constitution, which, in a few days, was signed by upwards of 8000 individuals, the most respectable for rank, character, and property.

But nothing tended so much to heal the political dissensions which, at this period, distracted the country as well as the metropolis, as the war which commenced between this country and France. The court of common council now addressed his majesty, to thank him 'for his paternal care in the preservation of the public tranquillity,' and assured him of 'the readiness and determination of his faithful citizens to support the honor of his crown, and the welfare of his kingdoms, against the ambitious designs of France.'

A few tumults, but not of a political nature, occurred about this time, in which some crimping houses, and decoy houses for recruiting, were destroyed by the mob: the pop-gun plot, in which three persons were apprehended for a conspiracy to assassinate the king, also excited some alarm, but, after the persons had been confined a few months, they were liberated; not but that there were individuals capable of committing the most daring outrages, even on their sovereign, who, in proceeding to open the parliament, in October, 1795, was beset by a mob, said to amount to 100,000 persons: they assailed his majesty with seditious cries; several stones were also thrown at the royal carriage, and one of the glass pannels was broken by a bullet either of lead or marble.

While a misguided populace were thus insulting one of the best of monarchs, the monied interest of London was manifesting the strongest marks of confidence in his majesty's conduct. The

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exigencies of the times requiring extraordinary supplies, Mr. Pitt, who calculated largely, but not erroneously, on the disposition of the city, proposed raising a voluntary loan of £18,000,000, and on the 1st of December, 1796, communicated his project to the lord mayor, requesting him to make it known to the corporation and public companies. Had the minister offered to lend the sum, instead of asking to borrow it, he could not have been answered more promptly. The bank lent £1,000,000, and in four days the whole sum was subscribed, so that when the court of common council voted £100,000, on the morning of the fifth day, it was only admitted as a favor. Two years afterwards the merchants, bankers, and traders of London determined on aiding government with a voluntary subscription, which, in the course of a few hours on the day it was proposed in the Royal Exchange, amounted to £46,500; the bank added £200,000, and the court of common council £10,000; and, in the course of a very short time, the subscription amounted to nearly £2,000,000.

The vigor with which the war was prosecuted, the patience with which the people submitted to every privation, and the joy with which peace was hailed, are events which belong to the history of Great Britain, and not to London in particular. The peace was, however, of short duration, and the government found the people ready for new sacrifices.

The domestic history of this period was marked by a conspiracy to overturn the constitution, when colonel Despard, and other persons of the lower class of society, were arrested at a public-house—the Oakley Arms, Oakley Street. In the month of February, 1803, ten of them were convicted of high-treason, and on the 21st of that month Despard and six others were executed on the top of Horsemonger gaol, Southwark; their heads were cut off and exhibited to the crowd, but the other part of the sentence on traitors was remitted.

During the long war that ensued, party politics were carried to a great length, not only in the senate, but also in the city council, and on more than one occasion the citizens were divided in their sentiments, as to the measures of government: a new call for men or money, or a new opportunity of testifying their loyalty, was however sure to unite all ranks and parties, and no loyalty could be less equivocal than that which was manifested in the metropolis on the 25th of October, 1809, when his late majesty entered the fiftieth year of his reign, and which was celebrated as a jubilee. The arms of France had triumphed over every continental power, and England, left to continue the struggle single-handed, had swept the ocean of her enemies, and sighed for new worlds to conquer—or a new stage on which to renew the combat, when the Spaniards began to shake off the lethargy which had placed them beneath the yoke of the Gallic emperor. England was not backward in her aid, and the city of London, equally prompt, opened the subscription for the Spanish army, which, in the course of a few weeks, amounted to upwards of £50,000. The contest was obstinate, and the issue long doubtful, when a domes-

tic event created an alarming sensation in the metropolis. On the evening of the 11th of May, 1812, as Mr. Percival, the chancellor of the exchequer, was entering the lobby of the house of commons, he was shot by a person of the name of John Bellingham. In the first moment of alarm it was feared that this sanguinary act might only be part of a deep laid and extensive conspiracy against government, but it was soon discovered that it was the single act of an assassin, who had become desperate by misfortune, and imagined that government had not afforded him the protection to which he was entitled in his commercial intercourse with Russia. The wretched man, who made no attempt to escape, was taken into custody, tried and convicted at the Old Bailey, on the Friday morning, and on Monday the 18th he was executed.

From the time that his present majesty was appointed regent, in January 1811, in consequence of the malady with which his royal sire was afflicted, the success of the British arms became as signal on land as it hitherto had been at sea; and often were the tranquil pursuits of the citizens interrupted by the roar of the park and tower guns, announcing some new victory obtained by our gallant troops in the Peninsula under the illustrious Wellington, until even victory lost its novelty; and the people of England felt more joy in giving peace to France than they had done in all their triumphs over her.

The treaty concluded at Paris, on the 30th of May 1814, gave peace to Europe, after a war of more than twenty years' duration; and, on the 8th of the following month, the emperor of Russia, the king of Prussia, and two of his sons, with several of the Austrian, Russian, and Prussian generals who had most distinguished themselves, visited London, and were treated by the court and the city with true English hospitality.

The war which had been for some time carried on between Great Britain and the United States of America, was terminated by the treaty of Ghent; but scarcely had the nation felt the blessings of peace, when Napoleon, the emperor of France, who, on his abdication, had chosen and been allowed the Isle of Elba for his residence, returned to France, and, in a march to Paris which has no parallel in history, overturned the government of the Bourbons, and reseatd himself on the imperial throne, without drawing a sword, or firing a musket. The clangor of arms again resounded through Europe. The British troops, under the command of the duke of Wellington were cantoned in the Netherlands, and the Prussians soon marched to their support. The battle of Waterloo followed—the anxiety in London for tidings of its results was unbounded; we need not repeat what they were: the allied armies again entered Paris; Buonaparte surrendered himself to the British nation, and was sent to the Island of St. Helena, where the imperial exile died on the 5th of May 1821.

Domestic calamities and domestic dissensions succeeded the war; the princess Charlotte of Wales, who had been married to prince Leopold of Saxe Coburg, in the preceding year, died on the 6th of November, 1817, in child-bed, to the great grief of the whole nation! and never per-

naps did the metropolis wear an aspect of such profound and sincere grief as on the day of her funeral: all business was suspended, and the churches and chapels were unable to contain the numbers that crowded to acknowledge their submission to the will of the divine Being.

Some time previous to this period several meetings had taken place in Spa-fields, and other places, for the avowed purpose of petitioning or remonstrating with the government. One of these was held on the 2d of December 1816, and was followed by riots in the city. Some pawn-brokers' and gunsmiths' shops were robbed, and several outrages committed. Four persons were arrested for high-treason, and tried, but were acquitted. One of the rioters was, however, convicted and executed.

The metropolis was still in an unsettled state, and in January 1818 it was deemed necessary to suspend the Habeas Corpus Act, which for some time restrained the disaffected; until the Cato Street conspiracy was discovered in 1820, when nine persons were secured in a small stable-toft, where they had assembled on the night fixed upon for assassinating his majesty's ministers, while assembled at dinner at the house of lord Harrowby. The ring-leader Thistlewood, who had been tried for high treason in 1817, at first escaped, but was taken next day, and, together with five of his associates, tried and executed at the Old Bailey, 29th of April. Since this occurrence the tranquillity of the metropolis has been undisturbed by any political events of moment.

REMARKABLE DISTINCT EVENTS.

There are some few events in the history of London so remarkably distinct from the general occurrences of our narrative, that we have thought they would prove more acceptable to our readers as separate addenda.

1. *Earthquakes and hurricanes*, as natural calamities, first demand our attention. London has been but four times visited with any shocks of the former kind, and they have been remarkably slight. The first of them known in history occurred on Valentine's Eve, in the year 1247, but the damage done was trifling; as was that of two others in 1601 and 1692; a severer shock was experienced in 1580, when Stowe assures us several churches were shattered, and the bells struck against the hammers. Two other shocks were felt on the 8th of February and 8th of March, 1751, which the fears of the inhabitants appear to have magnified excessively—for the only damage that they did was what is done by a high wind every year, throwing down a few chimneys and some old houses, which ought to have been condemned. The earthquake of 1751 afforded one Bell, a life-guards-man, the opportunity to practise on the credulity of the people, by prophesying, that 'as the second earthquake had happened exactly four weeks after the first, so there would be a third precisely four weeks after the second, which would lay the cities of London and Westminster in ruins.' So great was the panic, that, a few days before the threatened destruction, the inhabitants began to quit the town in great numbers. 'Many persons,' say the newspapers of the day 'left their houses

and walked in the fields, or lay in boats all night, many people of fashion in the neighbouring villages sat in their coaches till day break; others went to a greater distance, so that the roads were never more thronged, and lodgings were hardly to be procured at Windsor; so far, and even to their wit's end, had their superstitious fears, or their guilty consciences, driven them.'

But this metropolis has frequently and severely suffered by hurricanes: on one occasion more severely than by any other calamity, except by the great fire. The most remarkable storms have been those of the years 1440, 1445, 1599, 1703, 1739, 1740, 1788, 1790, 1794, 1797, 1798, and 1801; but, with the exception of that of 1703, none of these were very destructive. The last mentioned hurricane, which is often denominated the high wind of 1703, began about ten o'clock on the night of the 16th of November, and raged with unabated fury until seven o'clock next morning. Such a scene of devastation was scarcely ever witnessed as in a few hours had been committed in London, where 2000 stacks of chimneys were blown down, and the lead torn from the roofs of several churches, or rolled up like skins of parchment. Two turrets, which had been built a short time before on the church of St. Mary, Aldermary, the four pinnacles of St. Michael's in Cornhill, and one of the spires of St. Saviour's, Southwark, were blown down; the guard room, at Whitehall, was completely unroofed; the vanes and spindles of the weather-cocks on nearly all the churches were broken to pieces; upwards of thirty houses in Moorfields and other parts of the town were entirely blown down, and several hundreds more were dilapidated. Twenty-one persons were killed, and upwards of 200 severely wounded by the falling of chimneys and houses. All the ships in the river Thames, except four, broke from their moorings, and were cast on shore, principally between Shadwell and Limehouse; sixty barges were driven, with great fury, against London-bridge, many of which were sunk or staved, and nearly 500 wherries were entirely lost. The loss sustained in London was estimated at £2,000,000 sterling, and such was the demand for tiles for covering the dilapidated houses, that the price was advanced from £1 1s. to £6 6s. per 1000, and bricklayers' labor rose in an equal proportion. It was in this storm that the Eddystone light-house was blown down.

2. *Remarkable fires*.—The first fire in London we find noticed is by the Iceni under Boadicea, who laid Colchester, St. Albans, and London, waste by fire and the sword. In the years 764, 798, and 801, also, London suffered severely from conflagration, particularly in 798, when the city was almost burnt down, and many of the inhabitants perished in the flames. In 982 a fire accidentally took place, which nearly destroyed the whole city; but, according to the Saxon chronicle, 'the greatest casual fire that till this time befel the city' was in 1077, 'when the greatest part of it was laid in ashes.'

We find, however, the city rebuilt, and a prey to a still greater fire in the year 1086, which Stowe says, 'spread over almost all the principal cities of England: the church of St. Paul's, in London, was burnt, with the most part of the

city, which fire began at the entry of the west gate, and consumed to the east gate.' Another fire in 1090 destroyed a considerable part of the city; which in 1135 again fell a prey to the flames. This began near London Stone, and burnt eastward as far as Aldgate, and westward to St. Paul's. The fire of 1212 belongs rather to the account of London Bridge. See our Part III. of this article. In 1232 and 1483 London was visited with fires; in the latter, which began at Leadenhall, Stowe says, 'much housing was burnt, and all the stocks for guns, and other like provision, belonging to the city.'

The great fire of London, as it has been most appropriately called, broke out at one o'clock on Sunday morning Sept. 2d, 1666, at the house of one Farryner, a baker, in Pudding Lane, Fish Street Hill. Whether it originated in accident or design is a point on which historians by no means agree, while all concur in representing it as at once more destructive in its progress, and ultimately productive of more beneficial effects, than any conflagration recorded in history. It is even the opinion of more than one respectable writer, that the fire was almost necessary to promote the complete extinction of the plague, which had the year before dealt desolation with such an unsparing hand in the metropolis, that the very air had become tainted with the putrefaction of the dead; we are far from thinking this to have been the case, but it is not too much to infer, that, had it not been for some such calamity as the great fire, London might long have suffered by that dreadful scourge of humanity, which its crowded streets, by confining the circulation of the air, and the want of cleanliness on account of the scanty supply of water, seemed so well calculated to promote. It is true that a city was destroyed and property to an unparalleled amount was lost; but the result was, a new city, improved in wealth, grandeur, and all the conveniences of life, which otherwise would not have been obtained for ages: and, however fatal the calamity must have been to the age in which it happened, it has been productive of the most lasting benefits to posterity. The part of the town where it began is now very confined, but it was much more so at that time, when the neighbourhood consisted of nothing but narrow lanes and passages, and the houses were principally of wood, or lath and plaster. The fire soon spread to the adjacent houses, and defied the power of buckets, for the engines could not be brought to bear upon it with any degree of success, on account of the narrowness of the streets. It was then suggested to the lord mayor, Sir Thomas Bludworth, who arrived on the spot at three o'clock in the morning, that it would be advisable to pull down several houses, in order to intercept the progress of the flames; but he refused to allow of so prudent a measure, and is said to have expressed his opinion of the insignificance of the fire in flippant and indelicate terms. By eight o'clock in the morning it had reached London Bridge, 'and there dividing, left enough to burn down all that had been erected on it since the fire in 1633, and, with the main body pressed forward into Thames Street,' which was charged with combustible materials that augmented it

very considerably, raging with great fury the whole day, and striking the inhabitants with such terror, that, says Lord Clarendon, 'all men stood amazed as spectators only, no man knowing what remedy to apply, nor the magistrates what orders to give.'

The amiable Evelyn, who has left a most nervous and unaffected narrative of this great calamity, says, 'the conflagration was so universal, and the people so astonished, that from the beginning, I know not by what despondency or fate, they hardly stirred to quench it, so that there was nothing heard or seen but crying out and lamentations, running about like distracted creatures, without at all attempting to save even their goods, such a strange consternation there was upon them.' At first the fire took an easterly direction, and proceeded so rapidly, that considerable fears were entertained it would reach the tower, to prevent which several houses were pulled down: but on the night of Monday it became directed to other quarters. The wind changed, and blew with 'so great and irresistible violence, that it scattered the fire from pursuing the line that it was in with all its force, and spread it over the city, so that they who went late to bed, at a great distance from any place where the fire prevailed, were awakened before morning with their own houses being in a flame.' On Monday, Gracechurch Street, and part of both Lombard Street and Fenchurch Street, were in flames; the fire then was burning in the form of a bow.

When the first panic was over, and the fire spread so rapidly that no person could calculate on the safety of his house, great exertions were made to remove the property into the adjacent fields, which, for many miles round, were strewed with all sorts of moveables. Five, ten, and even fifty pounds were given for a cart, to remove some valuable property about to be consumed—the boats and barges on the river were all laden; and 'scarcely a back, either of man or woman, that had strength, but had a burden on it in the street.'

The night of Monday was more dreadful than the preceding one; the fire shone with such a fearful blaze, that the streets were as light as from the sun at noon-day. After spreading, in one line westward, along the banks of the Thames, as far as Queenhithe, and in a parallel direction along Cornhill to the Royal Exchange, and northward to Dowgate and Watling Street, it divided itself into four branches, which united in one great flame at the eastern end of Cheapside: on Tuesday the whole of that street was in flames, and the fire was seen 'leaping from house to house, and street to street, at great distance one from the other.' The impetuous flames now advanced with lawless power to the cathedral of St. Paul's; 'the stones of which,' says Evelyn, 'flew like granados, mealting lead running down the streetes in a streame, and the very pavements glowing with a fiery rednesse, so as no horse nor man was able to tread on them, and the demolition had stopped all the passages, so that no help could be applied.' The neighbouring streets shared the same fate, and the writer just quoted draws a vivid feature of

the appalling scene: 'Oh the miserable and calamitous spectacle!' he exclaims, 'such as haply the world had not seen the like since the foundation of it, nor be outdone till the universal conflagration. All the sky was of a fiery aspect, like the top of a burning oven, the light scene above forty miles round about for many nights. God grant my eyes may never behold the like, now seeing above 10,000 houses all in one flame; the noise and cracking and thunder of the impetuous flames, the shrieking of women and children, the hurry of people, the fall of towers, houses, and churches, was like an hideous storm, and the air all about so hot and inflamed, that at last one was not able to approach it, so that they were forced to stand still and let the flames burn on, which they did for neere two miles in length and one in breadth. The clouds of smoke were dismall and reached, upon computation, neere fifty miles in length. Thus I left it this afternoone burning, a resemblance of Sodom, or the last day. London was, but is no more.'

On Tuesday night, the devouring element continued its destructive havoc, sweeping away Ludgate Hill, the Old Bailey, the whole of Fleet Street, and the Inner Temple, and threatening even the Court at Whitehall, which now began to be alarmed, and gave directions to blow up several houses with gunpowder—a plan which, if adopted at the commencement of the fire, when it was suggested by some seamen, might have saved half the city; but this 'some tenacious and avaricious men, aldermen, &c., would not permit, because their houses must have been of the first.'

On Wednesday morning, when the inhabitants of Westminster and the suburbs were preparing to flee from the flaming sword which seemed to pursue them, the wind was hushed, the fire was stayed, and a remnant of London was saved. The first effectual check that the fire encountered was the brick buildings of the Temple, which were only partially consumed, and although the fire broke out again here on the Thursday evening, the duke of York, who watched there the whole of that night, caused the houses in front of it to be blown up, by which means the flames were extinguished.

To aggravate the ruin and distress in which the citizens were involved, by the loss of their houses and their property, the most alarming reports were spread. It was rumored that persons had been taken with fire balls and matches, in the act of attempting to set fire on the city in other places. This so enraged the multitude, that they killed a poor woman who had something concealed in her apron, which they conceived to be fire balls, and wounded several other persons, particularly French and Dutch, against whom they felt very indignant. A more alarming rumor was circulated on the Wednesday night; when the inhabitants were lying in tents in the neighbouring fields, it was reported, that 'the French were coming armed against them to cut their throats, and spoil them of what they had saved out of the fire.' Despair roused the citizens, and, fired with indignation, they prepared to defend themselves; but morning dispelled their uneasiness, and brought

with it the joyous prospect that the fire was subdued, and that no new calamity threatened them.

Nothing could exceed the zeal and activity of the king and the duke of York during the whole of the dreadful scene: they traversed the city night and day, encouraging the laborers, where they thought there was the slightest chance of arresting the progress of the flames, and personally directing every measure for that purpose: to this energy, and to a corresponding vigilance on the part of the magistracy and the train bands, must be attributed the circumstance, that so few lives were lost, and so few outrages committed.

The extent of the ravages covered a space of 436 acres; as the boundaries are fixed in the official account of the fire, which appeared in the London Gazette of the 10th of September. It is here stated, that a stop was put to it at 'the Temple Church, near Holborn Bridge, Pye Corner, Smithfield; Aldersgate, Cripplegate, near the lower end of Coleman Street, at the end of Basinghall Street, by the postern at the upper end of Bishopsgate Street, and Leadenhall Street, at the standard in Cornhill, at the church in Fenchurch Street, near Clothworkers' Hall in Mincing Lane, at the middle of Mark Lane, and at the Tower Dock.'

In the British Museum there are forty-one folio volumes of the Decisions of the Commissioners on the claims of the persons who had suffered by the fire, but they do not furnish any account of the aggregate loss, nor could it, indeed, be very accurately ascertained. The inscription on the monument, founded on the reports of the surveyors, states that of the six and twenty wards it utterly destroyed fifteen, and left eight others shattered and half burnt; that it consumed 400 streets, 13,200 dwelling houses, eighty-nine churches, beside chapels, four of the city gates, the Guildhall, with several public buildings, hospitals, schools, libraries, and a vast number of stately edifices. In a tract, printed in the Harleian Miscellany, there is an estimate of the value of the property destroyed, in which the number of houses is calculated at 12,000; they are valued, one with another, at £25 per annum, which, at twelve years' purchase, make the whole amount to £3,600,000. The cathedral, the churches, and other public buildings, are valued at £1,800,000; the personal property and goods at a similar sum; £20,000 in wharfs; and £150,000 in boats and barges, cart loads of furniture, &c.; making in the whole £7,370,000: but it is supposed, that this calculation is much too low, and that the property destroyed could not be less than £10,000,000 sterling.

Great as the calamity was, and convinced as the citizens were that it had been the work of incendiaries, yet they bore it with patience and resignation, and thought only of repairing their loss and restoring the city, which they did so successfully, that Burnet says: 'to the amazement of all Europe, London was, in four years time, re-built with so much beauty and magnificence, that we, who saw it in both states, before and after the fire, cannot reflect on it, without wondering where the wealth could be found to bear so vast a loss as was made by the fire, and

so prodigious an expense as was laid out in rebuilding the city.' It is very remarkable that, during the whole time of the fire, and amidst all the alarm and confusion it occasioned, not more than six persons perished, and those principally by venturing incautiously over the ruins; nor do the bills of mortality appear to have been increased by the houseless condition to which so many thousands of persons were reduced, when compelled to live in huts erected in Smithfield, Finsbury, and Moorfields, and other places in the vicinity of the metropolis.

'Although so indiscriminate and so dreadful an act of vengeance, as that of destroying a whole city, can scarcely be supposed to be harboured by any human being, yet there is strong reason to believe,' say the brothers Percy, 'that the city was set on fire by incendiaries, and that in more places than one. The Roman Catholics have always stoutly denied it, and compare the accusation to that of Nero against the Christians, whom he charged with setting fire to Rome; and Pope, knowing that an invective or an assertion is better recollected and lives longer in verse than prose, has, in two lines on the monument, declared, that the accusation against the Roman Catholics is false. If, however, the circumstances were to be decided according to the rules of circumstantial evidence, we believe it would be fully established, that the fire was not accidental. Lord Clarendon, who certainly cannot be suspected of any illiberal prejudices, and would rather attribute the fire to chance than design, says, 'the breaking out of the fire in several places, at so great distance from each other, made it evident, that it was by conspiracy and combination;' that 'it could not be conceived how a house, that was distant a mile from any part of the fire, could suddenly be in a flame without some particular malice; and this case fell out every hour.' The noble author next alludes to Herbert, who was executed for the crime; and although his examination was somewhat contradictory, yet his confession was sufficiently explicit; for, when he was taken by the committee to identify the place, he pointed out the site of the house where the fire commenced as that which he and his accomplices had set on fire. Even lord Clarendon, who maintains Herbert's innocence, furnishes very strong proof of his guilt, in his account of his confession: he says, 'the house, and all which were near it, were so covered and buried in the ruins, that the owners themselves, without some infallible mark, could very hardly have said where their own houses had stood; but this man led them directly to the place, described how it stood, the shape of the little yard, the fashion of the door and windows, and where he first put the fire; and all this with such exactness, that 'they who dwelt long near it, could not so perfectly have described all particulars.'

Farryner, the baker, in whose house the fire originated, confidently asserts that it was set on fire; but whether Herbert was really guilty or not, or was, as his advocates contend, insane, there is evidence which is more than presumptive, that the city was wilfully burnt; it is not the deposition of prejudiced persons after the

fire happened, but evidence that the design existed many months before it was carried into effect. In the London Gazette, No. 48, for April 30th, 1666, there is an account of the conviction at the Old Bailey sessions, of John Rathbone, 'an old army colonel,' and several others, for conspiring the death of his majesty, and the overthrow of the government; and it states that 'the better to effect this hellish design, the city was to have been fired, and the portcullis to have been let down to keep out all assistance; the horse-guards to have been surprised in the inns where they were quartered, several ostlers having been gained for that purpose. The Tower was accordingly viewed, and its surprise ordered by boats over the mote, and from thence to scale the wall. One Alexander, who is not yet taken, had likewise distributed sums of money to these conspirators; and, for the carrying on of the design more effectually, they were told of a council of the great ones that sate frequently in London, from whom issued all orders; which council received their directions from another in Holland, who sate with the States; and that the 3rd of September was pitched on for the attempt, as being found, by Lillie's almanack and a scheme erected for that purpose, to be a lucky day, a planet then ruling, which prognosticated the downfall of monarchy.' The account concludes with stating, that 'the evidence against these persons was very full and clear, and they accordingly were found guilty of high treason.'

At first the following inscription was placed on the house built on the site of Farryner's; but the number of persons it attracted to the spot caused it afterwards to be removed. 'Here, by the permission of heaven, hell broke loose upon this Protestant city, from the malicious hearts of barbarous Papists, by the hand of their agent Herbert; who confessed, and on the ruins of this place declared the fact for which he was hanged, viz. that here began the dreadful fire which is described and perpetuated on and by the neighbouring pillar, erected anno 1681, in the mayoralty of Sir Patience Ward, Knight.'

There have, since the above period, been some serious conflagrations in London, particularly the fire in Thames Street on the 15th of January 1715, when upwards of 120 houses, and an immense quantity of merchandise, were destroyed. This calamity was aggravated by the death of more than fifty persons, who perished in the flames, and by other accidents.

On the 25th of March, 1748, a most destructive fire broke out at a peruke-maker's shop in 'Change Alley, Cornhill, which continued for twelve hours, and totally destroyed nearly 100 houses, twenty of which were in Cornhill. Mr. Eldridge, his wife, children, and servants, all perished in the flames, and several other persons were killed by various accidents. The loss occasioned by this fire was estimated at £200,000.

On the 7th of November, 1765, a fire broke out in the house of a peruke-maker, in Bishopsgate Street, which destroyed, or greatly injured, 100 houses. All the houses from Cornhill to the church of St. Mary Outwich, in Bishopsgate

Street, were burnt down: as was the White Lion Tavern, which had been purchased only on the preceding evening for £3000; several persons were killed by the fire, and by the falling of chimneys; and the next day a gentleman, thinking that some persons were buried among the ruins, got the firemen to work with their pick-axes, when, on removing the rubbish, they drew out two men, three women, and a child about six years old, all alive.

During the riots of 1780, the King's Bench, Fleet, and Bridewell prisons were set on fire, as well as several houses in various parts of the metropolis. In 1793, on the 2d of December, an extensive range of warehouses, near Hermitage Bridge, Wapping, was destroyed by fire, together with several adjoining houses. Three vessels lying in the dock were also burnt. The goods destroyed consisted principally of sugar, rum, and hemp. Of the sugar, 1400 casks were melted into one mass by the intense heat, and flowed through the streets in a brilliant stream of liquid fire.

But the greatest conflagration known in London since 1666 was the fire in Ratcliff, which broke out at Cock Hill, on the 23d of July 1794. It was caused by the boiling over of a pitch kettle at a boat-builder's, from whose warehouses it communicated to a barge laden with saltpetre and other stores, and thence extended to several other vessels. The warehouses of the East India Company were also consumed, and nothing could arrest the progress of the destructive element, until, having reached an open space of ground towards Stepney, the flames ceased for want of materials. It was calculated that, out of 1200 houses, of which the hamlet consisted, not more than 570 were left standing. A calamity so sudden and so fatal called for the immediate and the liberal aid of both the government and the public, and it was freely given: 150 tents were forwarded from the tower, and pitched in a vacant piece of ground near Stepney Church. Provisions were supplied, in the first instance, by the parish to the poor sufferers. A subscription was opened at Lloyd's Coffee-house for their relief, and several gentlemen, who attended near the ruins to solicit the assistance of the benevolent, were so successful, that on the Sunday immediately after the fire upwards of £800 was thus collected, of which £426 was in copper, including £38 14s. in farthings; exhibiting a singular instance how universal the feelings of sympathy and benevolence must have been. The whole sum subscribed in various ways for the relief of the sufferers was more than £16,000.

Several other fires, which have done considerable damage to various parts of the metropolis, have occurred, but those above noticed are the principal ones. The more substantial and less inflammable nature of materials used in building, the width of the streets, the regulation of the building act as to party-walls, and the more ready supply of water, are all guarantees that London will never again be visited with those calamities, which have laid it in ashes, in the course of a few hours. The fires in London have more frequently originated in accident than de-

sign: and so convinced was the legislature of this, that in the act of 1708 it was enacted, 'that every servant, by whose negligence or carelessness a fire should be occasioned, should forfeit £100, or, in default, be imprisoned and kept to hard labor during eighteen months.'

3. *Wat Tyler's insurrection* has already been recorded in our article ENGLAND. After finding himself at the head of 100,000 men, this incendiary aimed at the subversion of the government, and marched to London, breathing vengeance against the nobility and the members of the legal profession. The public gaols, which were opened, added to the rebel army, now so numerous, some men of a determined character, and with talents well calculated for keeping alive the flame of rebellion, which had been so successfully kindled. Among those gaol recruits was the famous John Ball, the priest, who now became chaplain-general to the army. Wat Tyler had for associates several other daring men, who, making a merit of their humble occupations, assumed the fictitious names of Jack Straw, Hob Carter, and Tom Miller.

In their route to London they committed many excesses, putting to death several peers and gentlemen, and every lawyer that had the misfortune to fall into their hands. In their hostility to the duke of Lancaster, they bound themselves by an oath, never to acknowledge for king any man whose name was John. When the rebels arrived at Blackheath, the princess of Wales, the king's mother, who was returning from a pilgrimage to Canterbury, passed through the midst of their encampment. The rebels permitted her to proceed on her journey, though some of the most insolent of them obliged her to kiss them, and maltreated her retinue.

The rebels now sent a deputation to the king, who had taken refuge in the Tower, and desired to have an interview with him. For this purpose Richard sailed down the river in his barge; but, on approaching the shore, and witnessing many instances of tumult and confusion, he did not think proper to land, but returned to the Tower. The king then sent to know the object of their assembling, and what it was they asked. Wat Tyler was reviewing his army when the king's messenger arrived, and, confident in the numbers of the men he saw marshalled before him, he sent back an insolent message, stating, that their business was of such importance as only to be communicated to the king, whom they desired to meet them. This request having been refused, agreeably to the determination of the king's council, the rebels marched towards London, and were soon masters of Southwark, which they plundered. London bridge might have offered some obstruction to their progress; but the mob, on the city side, opened the gates in spite of the magistrates, and Wat Tyler and his army entered the city, where they committed the most wanton excesses. The duke of Lancaster's palace in the Savoy, the archbishop of Canterbury's palace, the Temple, the hospital of St. John's Clerkenwell, and the houses of the judges and principal citizens (but more particularly those of the Flemings) were razed to the ground. Against the Flemings their rage was unbounded:

they dragged them from the churches where they had taken sanctuary, and massacred them in the open streets. Plunder, the usual attendant of public tumult, was certainly repressed, as much as possible, by the leaders of the insurrection, who even threw into the fire, amongst a heap of burning wealth, one of their followers, who endeavoured to secure a piece of plate.

The rebels now approached the Tower, where the king, with his mother, the archbishop of Canterbury, the lord treasurer, and several of the nobility had taken refuge, when Richard sent word, that he would give them a meeting on Mile-End Green, and thither a large body of them, chiefly of the Essex party, accordingly repaired. As he was about to leave the Tower, however, a chosen band of Wat Tyler's followers rushed into the fortress, cut off the heads of the archbishop, the lord treasurer, Sir Robert Hales, and the chancellor, and pillaged the royal apartments. Wat Tyler remained near the Tower at the head of 30,000 men. Consternation now seized on the government, and, after some discussion, it was deemed advisable to offer the rebels a charter; not, however, confirming the privileges of the people, or redressing their grievances, but abolishing villainage, and offering a general pardon for all crimes committed during the insurrection. This charter, which was dated the 15th of June, was in the following terms:—
 'Richard, &c. Know, ye, that of our special grace, we have manumitted or set free all and singular our liege subjects, and others of the county of Essex; and them and every of them from all bondage do release and acquit, by these presents. And also we pardon to our said liege men and subjects, all manner of felonies, treasons, transgressions, and extortions by them, or any of them, in any manner whatsoever done or committed.'

Armed with this charter, the young king proceeded to Mile-End, where his offers were accepted by the Essex men, who immediately dispersed to their homes. The success which had here crowned the efforts of Richard, induced him to attempt a negotiation with the principal rebel leader. For this purpose he repaired to Smithfield, with a few attendants, and sent Sir John Newton to desire Wat Tyler to meet him. Wat Tyler would only, however, attend at the head of his troops. When entering Smithfield, he was met by the same knight, with another message from the king, but the bearer, delivering it without dismounting from his horse, so offended the dignity of Wat Tyler, that he raised his sword to strike him down. The king, however, interposed, and cried out to Sir John to dismount. In the conference that ensued, Tyler demanded much more than had been yielded to his fellow insurgents. Besides a general enfranchisement of bond-men, he required that all warrens, parks, and chases should be made free and common to all, so that the poor, as well as the rich, should have liberty to fish, fowl, and hunt in all places throughout the kingdom. It is, however, worthy of remark, that none of the rebels asked for the slightest modification of the poll tax, the grievance in which the insurrection had originated.

The insolence of Wat Tyler, who is said, du-

ring the conference, to have frequently raised his sword, did not provoke the resentment of the king; but it so roused the indignation of the lord mayor, William Walworth, that, with a sword or dagger, he struck the rebel dead at his feet, and thus terminated the rebellion. See ENGLAND. Richard immediately knighted on the field the lord mayor, Walworth, and several of the aldermen, for their important services at this difficult crisis.

Thus terminated one of the most extraordinary and most formidable insurrections that London ever witnessed. Like most other popular commotions, it presented instances of private revenge, more striking than those of public feeling, and that too, in two of the most prominent characters who figured in it, Wat Tyler and Sir William Walworth. The former had been in the service of Richard Lions, an eminent wine merchant, and sheriff of London, who had inflicted personal chastisement upon him. When the rebel chief reached London, he caused his old master to be beheaded, and his head carried before him on the point of a spear, though it is, perhaps, too much to charge this act on Wat Tyler's resentment, since to be rich was a sufficient crime to insure the punishment. As for Sir William Walworth, whose name is perpetuated in a populous suburb, his loyalty is, perhaps, as questionable as Wat Tyler's patriotism. He was a principal sufferer by the insurrection, which had levelled to the ground a number of tenements which this citizen possessed on the bank side, and which were let out for the very worst of purposes. It is not too much, therefore, to suspect, that private feeling may have prompted his activity to put down the rebellion, and punish its leader.

4. *Jack Cade's Rebellion.*—Shakspeare, who 'exhausted worlds and then imagined new,' has rendered the insurrection of Jack Cade, in 1450, better known in the second part of his play of Henry VI. than it would have been had it been recorded only in history. With that license, which to poets is never denied, he has turned into ridicule an event, which occasioned no ordinary degree of alarm at the time, and has, by the extravagancies which he makes its leaders commit, thrown a discredit on popular insurrections, from which it is difficult to divest them. Not content with demolishing public buildings, and the houses of the wealthy, our bard makes Jack anxious to burn all the records of the realm, that his mouth may be 'the parliament of England. Denying that

— ignorance is the curse of God,
 Knowledge the wing wherewith we fly to heaven,'

Cade is represented as having a particular enmity to learning. He makes it one of his most serious charges against lord Say and Sele, that he had 'most traiterously corrupted the youth of the realm in erecting a grammar school,' and adds this more sweeping accusation: 'whereas before, our forefathers had no other books but the score and the tally; thou hast caused printing to be used, and, contrary to the king, his crown, and dignity, thou hast built a paper mill. It will be proved to thy face, that thou hast men

about thee, that usually talk of a noun and a verb, and such abominable words as no Christian ear can endure.'

Whatever designs Jack Cade might have had after striking his sword on London stone, and exclaiming 'now is Mortimer lord of this city,' he was, in the first instance, only the tool of others. The struggles of the rival houses of York and Lancaster, though not terminated, had a momentary cessation, when Richard, duke of York (whose son succeeded to the throne, under the title of Edward IV.) aspired to the crown. He was at this time in Ireland; and although the disasters of the government, in the loss of Normandy, had increased the number of his adherents, yet he did not choose himself to hazard an attempt to seize the crown. He enlisted Jack Cade, a daring Irishman, in his service, who, well supplied with money, and assuming the name of John Mortimer, of the house of March, executed in the early part of the reign, proceeded to Kent, where the duke had many friends. Here, in May, 1450, he hoisted the standard of insurrection, which was soon so numerously attended, that Jack Cade was strong enough to insult the city, and encamp as near it as Blackheath.

The king, determining to put down the insurrection by force of arms, assembled a body of 15,000 men, with which he marched against them. On his approach Jack retired, and lay in ambush in a wood near Sevenoaks. The king, imagining the rebels were dispersed, sent a detachment after them, under the command of Sir Humphrey Stafford. This detachment (see ENGLAND) falling into the ambush was cut to pieces, and the commander, as well as his brother, killed.

Cade now marched towards London, while the king and his court hastily fled to Kenilworth, leaving a garrison in the Tower, under the command of lord Scales. The city of London opened her gates to the rebels, and Cade entered in triumph at the head of his troops; but he prohibited, under the severest penalties, any injury being done to the inhabitants. He did not, however, take up his residence in the city, but in the borough of Southwark. On the second day he seized on the lord treasurer, lord Say, and had him beheaded. The Londoners seemed on very good terms with his followers, until some of the soldiers committed a riot in the city; the next morning, when Cade was about to enter the city as usual, he found the gate on London Bridge shut against him: a severe battle now ensued, which lasted all day. In the night a proclamation was issued by the government, offering a free pardon to all who laid down their arms. This being actively circulated through Southwark, next morning Jack Cade was deserted by his followers, and fled into Sussex, where he was killed by Alexander Iden or Eden as we have already stated. Many of his followers were executed.

5. *The Bastard Falconbridge's attack*—The bastard of Falconbridge, eldest son, as Shakspeare says,

To Robert Falconbridge,
A soldier by the honor-giving hand
Of Cour-de-Lion, knighted in the field,

having collected, in Essex and Kent, a considerable force of ships and men, sailed up the Thames to London, resolving, as at Angiers, to beat

'The flinty ribs of this contemptuous city,

Even till unfenced desolation
Should leave them naked as the air.'

Falconbridge, however, found the 'saucy walls of London too much even for his 'heavy hand. The citizens flew to arms in great numbers, and defended themselves gallantly. The bastard made his first attack by the river side of the city, which, in consequence of the ruin into which the walls in that direction had been suffered to fall, presented the least chance of resistance; but he found so many stout hearts arrayed in defence of every breach, that all his attempts to effect an entrance on this side were unavailing. After firing some houses on London Bridge, he returned down the river, and, at some distance below the Tower, landed his forces, amounting to about 5000 men, with the view of attacking the city, by land from the eastward. On Sunday, the 11th of May, the assault was made at Aldgate; the bulwarks were won; and the assailants were pushing boldly forward, when the portcullis was let down, and such as had entered the city were cut to pieces. Robert Basset, the alderman of Aldgate Ward, who commanded at this point, animated with a spirit as valiant as that of the bastard himself, was not, however, content with repulsing the enemy; for we are told, that he 'commanded, in the name of God, the portcullis to be drawn up; which being done they issued out, and with fierce fight drove their enemies back as far as St. Botolph's Church.' The lieutenant of the Tower, observing the success of this spirited sally, issued forth with the earl of Rivers at the head of a fresh company, and joining the brave alderman Basset, assisted him to put the enemy completely to the route. The pursuit was continued as far as Stratford; many of the enemy were slain, and many taken prisoners. The bastard only escaped, with the wreck of his forces, on board of his ships.

6. *The plague years.*—In former ages scarcely ten years elapsed in London without the visitation of this tremendous scourge. The narrow streets in which the current of air was either obstructed by architectural projections, or by the signs across them, together with the want of cleanliness, owing to the inefficient supply of water, and the want of regulations to prevent the accumulation of filth in the streets, did much to increase if not even to generate that disease, which under this name occupies so prominent a place in the severe calamities of the British metropolis.

In the middle ages the church yards are said to have groaned with the bones of the dead, piled up, and exposed to the air which they corrupted—the streets were filled with garbage and filth which no exercise of authority could compel the inhabitants to remove—the sewers, which generally ran above ground, were in a neglected state, while the sluttishness within doors corresponded with the filthiness of the streets without. As early as the fourteenth century we find the plague attributed to want of cleanliness; for when, in

the year 1361, it was dreaded that the plague, which made its appearance in France, would cross the channel, the king sent a letter to the mayor and sheriffs of London, commanding that cattle should not be killed nearer than Stratford-le-Bow or Kensington. Even as late as the memorable years 1625 and 1665, the plague was attributed to this want of cleanliness; and the tracts of the time are full of complaints on the subject. 'Let not carcases of horses, dogs, cats, and other animals,' says the author of a pamphlet, entitled *Certain Rules, Directions, and Advertisements on the Plague*, printed in London in 1625, 'lye rotting and poisoning the air, as they have done in More and Finsbury Fields, and elsewhere, round about the citie.' Another author of the same period distinctly attributes the plague to all sorts of unsavory stench, proceeding either from carrion, ditches, and rotten dunghills, vaults, sinks, nasty kennels, and streets strewn with all manner of filth, seldom cleansed; these fetid smells are the maintaining cause of the contagion.

Although there is strong reason to believe, that for some centuries, the city was not wholly free from the plague; yet there have been particular years when it has broken out with singular fury, and which on this account have been denominated plague years. Independently of those which have been general to the country, we find London has suffered more immediately on several occasions. The year 1348 is distinguished by a dreadful pestilence, which is said to have originated in India, and thence spread over all the globe. Historians relate, that it fell with so much force on London, as scarcely to leave a tenth person of all sorts alive. The ordinary cemeteries were insufficient, and burial grounds were opened in several places beyond the walls of the city, where the dead were heaped in indiscriminate confusion: 50,000 persons perished in London alone. The years 1361 and 1369 were also plague years, but less fatal to London than that of 1407; when 30,000 were swept from the metropolis. The plague of 1479, though of short duration, only from September to November, was very destructive, but nothing equal to that of 1499—1500, when another 30,000 of the citizens of London were hurried to a premature death. The king and court, taking the alarm, removed from place to place, and lastly to Calais, then belonging to England, in order to avoid the infection. In a former year, 1485, if we are to believe Hall, a sweating sickness killed two mayors and six aldermen in one week. The pestilences of 1513, 1525, and 1548, were also severe. During that in 1525, Michaelmas term was adjourned, and the king removed to Eltham, where he kept his Christmas with so unusually small a court, that it was called the still Christmas.

In the plague of 1563-1564, 20,000 persons died in London, and the lawyers suspended one term, and removed the sittings of another to Hereford Castle; while, in that of 1574, the city banquet at Guildhall on the installation of the new lord mayor, was dispensed with by order of the queen. The plague of 1582 carried off nearly 7000 persons, and that of 1592 more than 11,000.

Almost every succeeding plague exceeded its predecessor in severity; that which followed in 1603, on the succession of James VI. of Scotland to the throne, was particularly fatal. The citizens had welcomed the king to London in great triumph, and conducted him to the Charter House, where he had a most royal entertainment for four days, given to him by lord Thomas Howard. Great preparations were also made in the city for the coronation, but these were interrupted by the plague, which was by this time considerably increased. The coronation indeed took place, but it was stripped of the pomp and circumstance of a city pageant. Their majesties rode not through the city in royal manner as had been accustomed, nor were the citizens permitted to behold the ceremonial at Westminster, being forbidden by proclamation to repair thither, with the exception of the lord mayor, and such of the citizens as, by virtue of the ancient claim, assisted the chief butler at the coronation.

The courts of law were removed; Michaelmas term was held at Winchester, and the courts of exchequer at Richmond. Bartholomew fair and all fairs within fifty miles of the metropolis were suspended; and James issued several proclamations for preventing any further increase of build-ings.

The great plagues have not been wanting in historians. That of 1603 has found an eccentric, but by no means inelegant chronicler, in a black letter tract, entitled *The Wonderful Yeare 1603*, wherein is showed the picture of London, lying sicke of the plague. At the end of all (like a merry epilogue to a dull play), certaine tales are cut out in sundry fashions, of purpose to shorten the lives of the long winter nights, that lye watching in the darke for us. The author gives a most vivid description of this horrible pestilence. He compared the citie to a vast silent charnel house, with lamps dimly and slowly burning, where the pavement, instead of green rushes, is strewn with blasted rosemary, withered hyacinths, fatal cypress, and yew thickly mingled with heaps of dead mens' bodies; the bare ribs of a father that begot him lying there; here the chaplesse hollow sculle of a mother that bore him, round about him 1000 corse; and even such he says was the city:

'For he that durst, in the dead hour of gloomy midnight, have been so valiant as to have walkt through the still and melancholy streets, what thinke you should have been his musicke. Surely the loud groanes of raving sicke men: the struggling panges of soules departing. In every house grieve striking up an alarm; servants crying out for masters, wives for husbands, parents for children, children for their mothers; here he should have met some frantically running to knock up sextons; there others fearfully sweating with coffins, to steale forth dead bodies, least the fatal hand writing of death should seale up their doores.

'How often,' continues this writer, 'hath the amazed husband waking, found the comfort of his bedde lying breathlesse by his side; his children at the same instant gasping for life; and his servants mortally wounded at the heart by sickness, the distracted creature heats at death's doores, ex-

claimers at windows, his cries are sharp enough to pierce heaven, but on earth no eare is opened to receive them ! And in this manner do the tedious minutes of the night stretch out the sorrow of 10,000.

‘ It is now day, let us looke forth and try what consolation rises with the sun ; not any, for before the jewel of the morning be fully set in silver, 100 hungry graves stand gaping, and every one of them (as at a breakfast) hath swallowed down ten or eleven lifelesse carcases : before dinner in the same gulfes are twice so many more devoured : and before the sun takes his rest, those numbers are doubled. Threescore, that not many houres before had every one several lodgings here very delicately furnisht, are now thrust altogether into one close room—a little noisome roome not full ten feet square.’

The tales which the author introduces, to shorten the lives of long winter nights, are many of them as pathetic as his general description, though some of them have touches of humor, which show that he was no ordinary master of the passions. One of the most affecting is that of a young couple who went to church to get married, when the bride was so ill, that, ‘ had not the holy officer made haste, the ground on which she stood to be married might easily have been broken up for buryall.’ She was led not like a bride, but rather like a corse to her bed, and died in a few days.

The number of persons who fell victims to the plague, is during this year, estimated by some historians at 30,561 ; and by others at 30,578 ; but, as the total number of deaths in the city from March to December was 37,294, it is probable that a larger portion of them fell by the plague than is here assigned to it.

The plague of 1625 was still more destructive, sweeping off from a city already half desolated 35,000 persons in one year. The coronation of Charles I., like that of his father, king James, was shorn of its accustomed honors, particularly the procession through the city from the tower. In Whitelocke’s Memorials we find a curious anecdote of the terror created by this dreadful scourge. He says, ‘ When the plague was somewhat assuaged, and there died in London but 2500 in a week, it fell to judge Whitelocke’s turn to go to Westminster Hall, to adjourn Michaelmas term to Reading ; and accordingly he went from his house in Buckinghamshire to Horton, near Colubrooke, and the next morning early to Hyde Park Corner, where he and his retinue dined on the ground, with such meat and drink as they brought in the coach with them ; and afterwards he drove fast through the streets, which were empty of people, and overgrown with grass, to Westminster Hall, where the officers were ready, and the judge and his company went strait to the king’s bench, adjourned the court, returned to his coach, and drove away presently out of town.’

In the MSS. in the British Musuem there are several original letters written during the time of this plague, by Mr. Mead to Sir Martin Stuteville, one of his friends, which give some curious particulars relating to this malady which have escaped the historians of the time. Mr. Mead lived at Christ Church, Cambridge, at the time ;

but he appears to have had letters every week from Dr. Meddus, the rector of St. Gabriel’s, Fenchurch. In a letter, dated July 2d, 1625, Mr. Mead states that there were fifty parishes infected within the walls ; and, as an instance of the very sudden manner in which the hand of death was laid on individuals, he mentions that ‘ My lord Russel (afterwards fourth earl of Bedford), being to go to parliament, had his shoemaker to pull on his boots, who fell down dead of the plague in his presence, whereupon he abstains from that honorable assembly, and hath sent the lords word of this accident.’

In a letter, written the week after, Mr. Mead enumerates the deaths by the plague as in one week 593, and states that the intercourse between Cambridge and London was stopped. Hobson the famous carrier, of ‘ Hobson’s choice’ memory, had gone his last journey in the preceding week. The infection appears to have been at its height in the latter end of July : the deaths during that week were 3583, of whom 2471 were allowed to have died of the plague ; and Mr. Mead attributes the deaths of the greatest part of the remainder to what he calls the invisible plague.

Dr. Meddus, in one of his letters to Mr. Mead, relates the following very credible anecdote : ‘ A woman near the Old Swan, removing into Surrey for fear of the plague, when she was come on the hill, near Streatham, in the way to Croydon, turned back, looked on the city,’ said, ‘ Farewell London and farewell plague, but soon after was taken sick, had the tokens on her breast, and these words to be distinctly read, ‘ It is in vain to fly from God, for he is every where.’ Mr. Mead, in communicating this anecdote to Sir M. Stuteville, adds, ‘ You may judge of this or suspend it as you please.’

This gentleman was not however exempt from the superstitions of the time, for in another letter, dated September 4th, he says ‘ We have some here, make an observation that the first abatement of the plague was the week next following that, wherein came out the proclamation against papists, and it is true by the date thereof : but let me add my observation too, that, as the walls of Jericho fell down, when the priests with the ark of God had compassed it, blowing trumpets seven days or times ; so is the fall of the sickness, after the seventh general fast, accounting that general representative of the whole parliament for one.’

The plague in the year 1636 was less destructive ; though this does not appear to have been in the least owing to an improved mode of treatment, or that necessary means of preventing it, cleanliness in the houses and streets, since at a much later period, we find complaints on this account as strong and as frequent as ever. During this year, from April to December, the number of persons who died was 23,357, of whom only 10,400 are supposed to have perished by the plague.

At length the metropolis was consigned for a whole year to a pestilence more obstinate in its nature, and more destructive in its effects, than any that had preceded it. Although the plague of 1665, the Great Plague as it is called, to distinguish it from all others, is generally supposed to have

been brought from the Levant in some goods imported through Holland by a tradesman in Long Acre ; (yet, independently of the doubt, which exists as to this disease being at all importable), there is strong reason to believe that it is to be attributed to the same causes, that produced those which preceded it, the narrow streets, confined air, and want of cleanliness. This seems the more probable, as for a long period London had not been wholly free from the plague. Maitland says, for five and twenty years previous to 1665, it had not been clear of the malady, and that even from the year 1603 until 1670, the bills of mortality exhibit but three years, in which London, more or less, was not afflicted with the plague.

Even in 1665, when it broke out with unresisting fury, the populace considered it only as one of the judgments of the Almighty, to which submission was all they could offer, and conceived that to oppose it would be a mockery, or an insult to the deity. The very fears and superstitions of the people were no inconsiderable auxiliaries to the plague ; and they considered themselves as doomed to destruction, by the appearance of the heavens, and by a thousand indications, which, though as nothing in the eyes of philosophy, bring to the timid and superstitious confirmations strong as proofs of Holy Writ. A comet, which had appeared some months before the plague, was, when it broke out, considered as having foretold a judgment slow but severe, terrible and frightful.

These apprehensions were much increased by the pretended prophecies and astrological calculations of a set of impostors, who pretended to be better acquainted with the future than their neighbours. They fabricated stories of malignant conjunctions of the planets, and levied from the credulous no inconsiderable sums, until the hand of death, which respected not their knowledge, levelled them with the dupes of their artifice. So eager were the people to consult fortune-tellers and conjurors, that 'if but a grave fellow,' says the author of the History of the Great Plague, attributed to Defoe, 'in a velvet jacket, a band, and a black coat, which was the habit those quack conjurors generally went in, was but seen in the streets, the people would follow them in crowds, and ask them questions as they went along. The almanacks too proved a source of terror, and the coming plague was thought to have been fixed in Lilly's Almanack, Gadbury's Astrological Predictions, and Poor Robin's Almanack.

Fanatics or visionaries are said also to have run through the streets, agitated and agitating by their oral denunciations and predictions. One man ran about in a state of wild disorder, crying day and night like the man mentioned by Josephus, whose Woe to Jerusalem preceded and foretold its fall ; he walked quickly, and, with a voice and countenance beaming with horror, continually ejaculated 'O the great and dreadful God.' Another man, pretending a more than human authority for preaching to the city, went about like Jonah in the city of Nineveh, crying out 'Yet a few days and London shall be destroyed.' However imaginary these horrors were, a fearful reality was soon experienced.

The plague first began in Long Acre, towards the close of the year 1664, when, two or three persons suddenly dying in one family, the timid neighbours took the alarm and removed into the city, whither they are supposed to have unfortunately carried the infection. Here it gathered strength from the denseness of the population, and soon its ravages became extensive. The lower classes were seized with a panic ; and entertaining an absurd, but very general notion, that the plague visited London every twenty years, they took no means to counteract it.

A frost, which set in in December, and continued three months, if it did not exterminate the distemper, suspended its destructive effects ; but, no sooner had a thaw succeeded, than it burst forth with increased force. From the month of February the plague began to advance ; and, when it was discovered that it had extended to several parishes, the magistrates issued an order, dated 1st July, 1665, to shut up all the infected houses, which were marked with a red cross, bearing this inscription, 'Lord have mercy upon us.' Guards were constantly in attendance, to supply the sick with the necessary food, and to prevent their quitting their houses until forty days after recovery. This precaution is thought to have done much injury. Dr. Hodges, in his *Loimologia*, says, he verily believes that 'many who were lost might have been alive, had not the tragical mark upon their door driven proper assistance from them.' The same author adds, that what greatly contributed to the loss of the people thus shut up was, the wicked practice of nurses. 'These wretches,' says he, 'out of greediness to plunder the dead, would strangle their patients, and charge it to the distemper in their throats ! Others would directly convey the pestilential taint from sores of the infected to those who were well.' This is a serious charge, but it is not without a parallel in our own times ; for, during the last Russian campaign, some Jews who were employed in clearing the hospitals of Wilna of the dead, at a certain sum per head, were actually detected in throwing the sick and wounded out of the window, in order to augment the number.

The plan of shutting up the houses had been first adopted in the plague of 1603, when an act of parliament was passed to authorise it, entitled An Act for the charitable Relief and ordering of Persons infected with the Plague. If, on the one hand, it might be contended, that, by suffering persons to leave houses infected by the plague, they might extend its ravages, it must on the other be allowed as more than probable, that in many cases whole families fell victims to it, who might have lived, had they been allowed to quit the house on the first appearance of infection in any one of the family.

If the destroyer, when only stalking forth among men free to fly from his approach, and to shrink from contact with him, committed such havoc, it may be imagined how fell his ravages must have been among persons thus pent up together. Even those who retained full possession of health might calculate the hours they had still to live ; those who to-day turned out the bodies of their lifeless companions, might lay

their certain account with following them on the morrow; no hope of escape being left to any, all must have prepared to die; and this consolation at least they must have had, that neither fear nor apprehension could any longer interfere with the tender offices of friendship and affection. The surviving son needed not to shrink from closing the eyes of his dying parent, nor the widowed wife from pillowing her head on the cold breast of her departed spouse.

Rigorous as the prohibition to quit an infected house was, yet some were found to brave it. In the City Remembrancer, for 1665, it is related that 'a citizen broke out of his house in Aldersgate Street, and attempted, but was refused, going into the Angel or the White Horse at Islington. At the Pyed Horse he pretended going into Lincolnshire, that he was entirely free from infection, and asked lodgings for the night. They had but a garret bed empty, and that but one night, expecting drovers with cattle next day. A servant showed him the room, which he gladly accepted. He was well dressed; and, with a sigh, said he had seldom lain in such a lodging, but would make a shift, as it was but for one night, and in a dreadful time. He sat down on the bed, desiring a pint of warm ale, which was forgot. Next morning, one asked what was become of the gentleman? The maid, starting, said she had never thought more of him; he bespoke warm ale, but I forgot it. A person going up, found him dead across the bed; his clothes were pulled off, his jaw fallen, his eyes open, in a most frightful posture; the rug of the bed clasped hard in one hand. The alarm was great, having been free from the distemper, which spread immediately to the houses round about. Fourteen died of the plague that week in Islington.'

In the months of May, June, and July, the plague had continued with more or less severity; but in August and September it quickened into dreadful activity, sweeping away 3000, 4000, 5000, and sometimes 8000 persons in a week. Then it was that the whole British nation wept for the miseries of the metropolis. In some houses, carcases lay waiting for burial, and in others, persons in their last agonies; in one room were heard dying groans, and in another the ravings of delirium, mingled with the wailings of relations and friends, and the apprehensive shrieks of children. Infants passed at once from the womb to the grave. 'Who would not,' says Dr. Hodges, 'burst with grief, to see the stock for a future generation hang upon the breast of a dead mother, or the marriage-bed changed the first night into a sepulchre, and the unhappy pair meet with death in their first embraces? Some of the infected ran about staggering like drunken men, and fell and expired in the streets; while others lie half dead and comatose, but never to be waked but by the last trumpet.'

The divine often received the stroke of death in the exercise of his sacred office; the physician, finding no assistance in his own antidotes, died while administering them to others. The soldiery, retiring from an enemy with whom human power could not cope, encamped in the suburbs of the

city; but were overtaken, and fell unresisting victims of the great destroyer. Business was suspended; and if in the market a solitary individual was seen purchasing the means of life, that life was often terminated ere he reached his home. The bells seemed hoarse with tolling; and the sextons were not sufficient to bury the dead, with which the church-yards were so glutted, that they were thrown into pits, in heaps of thirty or forty together.

In the month of September the disease was at its height, and more than 12,000 perished in one week. Some persons recommended fires in the streets, and they were kindled for three days, though many of the physicians were against it; but, 'before the three days were quite expired, the heavens both mourned over so many funerals, and so wept for the fatal mistake, as to extinguish even the fires with their showers.' A fatal night succeeded, in which more than 4000 persons expired.

Those moving sepulchres, the 'dead carts,' continually traversed the streets; while the appalling cry, 'Bring out your dead,' thrilled through every soul not yet dead to feeling. Then it was that parents, husbands, wives, and children, saw all that was dear to them thrown with a pitchfork into a cart, like the offal of the slaughter-house, to be conveyed without the walls, and flung in one promiscuous heap, without the rites of sepulture, without a coffin, and without a shroud. Single graves were no longer dug in church-yards, but huge pits, sufficient almost to entomb a whole army. In Aldgate church-yard, after several pits capable of holding sixty or 100 bodies, had been dug and filled, the churchwardens caused one to be formed so large, that they were blamed, as making preparations to bury the whole parish. It was about forty feet in length, and fifteen or sixteen feet broad, and in some parts about twenty feet deep. Into this gulf they began to throw the dead on the 4th of September, and by the 20th of that month they had cast into it 1114 dead bodies, when they were obliged to fill it up, as it was within six feet of the surface. In other church-yards similar pits were dug, till they were choked with the dead, and additional burial grounds were formed in several parts of the town, some of which have ever since been used for the same purpose, while others have no trace of the dread calamity which first marked them out as sepulchres.

The burial ground in Bunhill-fields, in which many a nonconformist rests in peace, was first appropriated to that purpose during the plague. A piece of ground near the street called Old Bethlem, in Moorfields; and the plot at the top of Holywell Street, Shoreditch; and a third in Goswell Street, were also used as temporary burying grounds on this melancholy occasion. Stepney, though at this time it had three distinct burying grounds, overcharged them all with its dead; and there were no fewer than five other pieces of ground devoted to this purpose. On two of these the parish churches of St. Paul, Shadwell, and St. John, Wapping, have since been built. A green field at the upper end of Hand Alley, Bishopsgate Street, was enclosed

for 'he parish of St. Botolph alone, though the inhabitants of some courts beyond its precincts were allowed to bring their dead to it. Two or three years after the plague, a scene took place here which seemed to bring back all the horrors of that dreadful period. The ground was purchased by Sir Robert Clayton, who immediately let it out on building leases. In digging the ground for the foundations, numberless bodies were dug up; 'some of them,' says the author of *Reflections on the Bills of Mortality*, 'remaining so plain to be seen, that the women's skulls were distinguished by the long hair, and of others the flesh was not quite perished.' On complaint being made, the bodies were removed to another place in the same ground, where 'the ground,' says the same author, 'is palisadoed off in a little square, where lie the bones and remains of 2000 bodies, carried by the dead carts to the grave in one year.' Horrible as these pits were, constables were obliged to be placed near them during the plague; for it was not unusual for persons infected, either seized by a fit of delirium, or, what is more probable, anxious to mingle with the bodies of all that was dear to them, to steal from their houses unobserved, or obtain an egress by bribing the watchmen, and wrapped in blankets and rugs, to throw themselves among the dead.

In this wreck of a city, which was half entombed, delirium hurried many even to a premature death. 'People,' says Defoe, 'in the torment of their swellings, which was indeed intolerable, running out of their own government, raving and distracted, and oftentimes laying violent hands upon themselves, throwing themselves out at their windows, shooting themselves, &c. Mothers murdering their own children in their lunacy, some dying of mere grief and passion, some of mere fright and surprise, without any infection at all; others frightened into despair and lunacy; others into melancholy madness.' Many were the cases in which the mother and her unborn offspring perished at once; in others where they died for want of proper assistance in the hour of nature's sorrow. Others frequently sucked the fatal poison from the lips of their dying infants.

The plague reached its height in August, and during that month and September 50,000 perished.

It was now that the dead carts were insufficient for the office, and the houses and streets were rendered tenfold more pestilential by their unburied dead. All who had survived now made the attempt to escape, and eighteen or twenty watchmen were killed in opposing the people when fleeing from the infected houses.

The change which now took place in the feelings of the people is thus vividly described by Defoe. 'As I have mentioned how the people were brought into a condition to despair of life, and abandon themselves, so this very thing had a strange effect among us for three or four weeks; that is, it made men bold and venturous; they were no more shy of one another, or restrained within doors, but went any where and every where, and began to converse. One would say to another, 'I do not ask you how you are, or say how I am. It is certain we shall

all go; so 'tis no matter who is sick or who is sound;' so they run deliberately into any place or company.'

The moral lesson conveyed in the following passage is worthy of being kept in everlasting remembrance. 'As it brought the people into public company, so it was surprising how it brought them to crowd into the churches; they enquired no more whom they sat near to, or far from, what offensive smells they met with, or what condition the people seemed to be in; but, looking upon themselves all as so many dead corpses, they came to the churches without the least caution, and crowded together, as if their lives were of no consequence, compared to the work which they came about. Indeed, the zeal which they showed in coming, and the earnestness and affection they showed in their attention to what they heard, made it manifest, what a value people would all put upon the worship of God, if they thought every day they attended at the church that it would be their last. Nor was it without other strange effects; for it took away all manner of prejudice at, or scruple about, the person whom they found in the pulpit, when they came to the churches. It cannot be doubted, but that many of the ministers of the parish churches were cut off among others in so common and so dreadful a calamity; and others had not courage enough to stand it, but removed into the country as they found means to escape. As then some parish churches were quite vacant and forsaken, the people made no scruple of desiring such dissenters as had been a few years before deprived of their livings, by virtue of the act of parliament, called the act of uniformity, to preach in the churches; nor did the church ministers in that case make any difficulty of accepting their assistance; so that many of those whom they called silenced ministers had their mouths opened on this occasion, and preached publicly to the people.' It will be remembered how well the zeal and fidelity of these ministers was requited when the danger was over, by the act of uniformity.

The dead now were no longer numbered; for the parish clerks and sextons perished in the execution of their office. In the parish of Stepney alone, 116 sextons, grave-diggers, and carters employed in removing the dead bodies, died in one year; 10,000 houses were at once deserted, and it is said that, during the plague, not fewer than 20,000 persons quitted the metropolis.

Empty the streets in uncouth verdure clad
Into the worst of desarts sudden turned
The cheerful haunts of man.

In the last week of September, the plague began somewhat to abate, and the bills of mortality fell from upwards of 8000 to little more than 6000 weekly. Every succeeding week the number of victims diminished; so that by the month of February, in the following year, the pestilence had wholly ceased. The number that perished during this plague, according to the returns, was 68,590; but Defoe asserts, that the number was at least 100,000. The lives of a great many persons were preserved by means

of the shipping on the Thames, into which the infection did not reach except in a very few instances.

Even the survivors of this dreadful calamity would have perished of famine, but for the bounty of the affluent. The money subscribed is said to have amounted to £100,000 a week, to which Charles II. humanely gave £1000 weekly. In the parish of Cripplegate alone the disbursements to the poor amounted to £17,000 a week. But, even when the poor had obtained the money, they feared to lay it out in provisions, lest they should by this means catch the infection. If they bought a joint of meat in the market, they would not receive it from the butcher, but took it off the hooks themselves; the butcher, equally cautious, would not touch the money, but had it dropt into a pot with vinegar kept for the purpose. Workmen were equally cautious with their masters, and even members of the same family with each other.

The conduct of the magistracy, during the prevalence of calamity, did them infinite honor. Darwin has celebrated the heroic devotion of Sir John Lawrence, 'London's generous Mayor,' who,

When Contagion, with mephitic breath,
And wither'd Famine urg'd the work of death,
* * * * *

With food and faith, with med'cine and with prayer,
Rais'd the weak head, and stay'd the parting sigh;
Or with new life relum'd the swimming eye.

'The vigilance of the magistrates,' says the account ascribed to Defoe, 'was put to the utmost trial, and, it must be confessed, can never be enough acknowledged; whatever expense or trouble they were at, two things were never neglected in the city or suburbs either. First, provisions were always to be had in full plenty and the price not much raised either hardly worth speaking. Secondly, no dead bodies lay unburied, or uncovered; and, if one walked from one end of the city to another, no funeral, or sign of it, was to be seen in the day-time, except a little in the three first weeks in September.'

For the security of the country dealers by land, new markets were established on the outskirts of the metropolis, and proper regulations made to ensure the safety of those who attended them. Either the lord mayor, or one, or both of the sheriffs, went every market-day on horseback to see these orders executed. The necessitous were likewise furnished with food and money gratuitously, and the aldermen frequently rode through the streets on horseback, to enquire whether the wants of the people in the streets or houses were duly supplied.

In this year of desolation the most appalling scenes were continually occurring, which language would in vain attempt to depict. Many were the instances in which bodies were found stripped naked by thieves; and others, where the stupor of disease was mistaken for the sleep of death, and bodies yet warm and breathing were buried in the general mass. Tradition relates a narrow escape of a poor piper, which has been further immortalised by that great sculptor, Cibber, in a statue well known in

Tottenham Court Road. It represents a Highland piper playing on his pipes, with his dog and keg of liquor by his side. The piper, as the story goes, usually took his stand at the bottom of Holborn Hill, near St. Andrew's church, and, having one day met with some of his countrymen, he drank rather freely, and sought a couch on the steps of the church. As this was no time to sleep in the infected streets, when the dead cart arrived, one of the men did not hesitate to put his fork into the piper's belt, and transfer him to the cart. The piper's dog attempted to prevent his master from being carried off, but, unable to do this, he determined to accompany him, and, leaping into the cart, began howling most piteously over the body of his master. The shaking of the cart along the rugged pavement, and the howling of the dog, at length awoke the piper, who, instinctively turning to his pipes, struck up a lively Scotch tune, to the great terror of the carters, who fancied they had got a cargo of ghosts, until, lights having been procured, the piper was released, and his narrow escape was commemorated by one of his benefactors, who employed Cibber to execute a statue of him.

PART III.

DESCRIPTION OF MODERN LONDON.

This will embrace its site and climate; its rivers, canals, docks, and bridges; the tower and military defences; public buildings, civil, ecclesiastical, and charitable; streets, and squares; theatres and places of amusement; and the improvements in progress.

Situation and general plan.—The city of London stands entirely on the north bank of the Thames. St. Paul's is in lat. 51° 30' 49" N., and long. 5° 30' W. of Greenwich observatory. Its distance from the other capitals of Europe is, from Edinburgh 395 miles south; from Dublin 338 south-east; from Amsterdam 190 miles west; from Paris 225 miles N. N. W.; from Copenhagen 610 miles south-west; from Vienna 820 north-west; from Madrid 860 miles north-east by east; from Lisbon 850 miles; from Rome 950 miles N. N. W.; from Constantinople 1660 miles; from Moscow 1660 miles E. S. E.; from Stockholm 750 miles; from Petersburg 1140 miles; and from Berlin 540 miles.

The ancient city, or London within the walls, is about a mile and half in length, and something more than half a mile in breadth. During the last century its population has diminished nearly one-half; a circumstance to be attributed to the widening of the streets, to the many public buildings that have been erected, and to the general extension of its suburbs. London without the walls, being merely the expansion of the ancient city which it surrounds, is governed by the city magistrates.

The greater part of London stands upon rising ground; the soil is sound and dry; the lower parts are freed from moisture by subterraneous sewers or drains; and, from the vast quantities of water with which the inhabitants are constantly supplied, by means of the Thames and of the New River, great sweetness and cleanliness are preserved. The drains here mentioned are large

vaulted channels, beneath the pavements, communicating with each house by smaller ones, and with the respective streets by gratings, to carry off such as may be conveyed in that manner into the river. Mud, and other rubbish, are taken away in carts, by persons constantly employed for that purpose.

Considered in the aggregate, London comprises the city and its liberties, with the city and liberties of Westminster, the borough of Southwark, and nearly thirty of the contiguous villages of Middlesex and Surrey. The greatest portion of the whole is built on the northern bank of the Thames, or in Middlesex; whilst Southwark, with Lambeth, and several connecting villages, extend along the southern shore of the same river, in the county of Surrey. The extent east and west, from Poplar to Knightsbridge, is full seven miles and a half; while its breadth from north to south, or from Newington Butts to Islington, is nearly five miles. The circumference of the whole, allowing for various inequalities in the extension of streets, &c., at the extremities, is upwards of thirty miles. Hence it may be fairly estimated, that the buildings of this metropolis cover at least eighteen square miles, or 11,520 square acres. The river Thames occupies, for seven miles, a space of about one quarter of a mile, or 400 yards in width; or 1120 square acres.

This metropolis may be said to consist of five great parts or portions; viz. the west end of the town, the city, the east end of the town, Westminster, and the Borough. The west end of the town is popularly regarded as extending from Charing Cross to Hyde-park, and from St. James's park to Paddington. It is considered the superior and most fashionable part of the town, is the general abode of the court, and is laid out in two great thoroughfares, Oxford Road or Street, and Piccadilly and Regent Street; with various handsome squares and streets, chiefly occupied by the town houses of the nobility and gentry, and fashionable shops. The city includes the central part, and is the emporium of commerce.

The east of the town is also devoted to commerce, to ship-building, manufactures, and various collateral branches of merchandise; and here vast commercial docks and warehouses have been formed and constructed. The southern bank of the Thames, from Deptford to Lambeth, bears a great resemblance to the east end of the town; being occupied by persons engaged in commercial and maritime concerns; and docks, wharfs, and warehouses are abundant. This part of London abounds likewise with iron-foundries, glasshouses, soap-boilers, dye-houses, boat-builders, shot and hat manufactories, &c.

Southwark, a borough, once entirely independent of the city, but now forming the ward called Bridge Without, was, up to the reign of Edward III., so notoriously the resort of felons, robbers, and divers other malefactors, and disturbers of the peace, that the king, with the consent of the parliament, granted the city of London 'the said village with all its appurtenances,' for the sum of £10, to be paid annually. This grant, however, Richard, his successor, refused to con-

firm; and the corporation was unable, for several reigns, to establish its jurisdiction here. But, the privileges of the religious houses being at length renewed, the regents under Edward VI. (the great obstacle in their way), confirmed the complete annexation of the borough to the city by letters patent, dated 23d April, in the fourth year of that monarch's reign.

Many improvements have of late years been made, and many respectable houses erected in St. George's Fields. Hitherto also has been brought the Bethlem hospital for lunatics, formerly in Moorfields. Another part of the metropolis, the most regular and systematic of the whole in its arrangement, is the northern side, comprehending a large mass of new buildings between Holborn and Somers-town, and in the parishes of Mary-le-bone, and Paddington.

Amongst the many proofs of the early and extreme fondness for legislation which marks our history, may be mentioned the various laws which have been passed to prevent the growth of London. Queen Elizabeth led the way in this sage endeavour, and a statute of her reign commands (we believe it is not yet repealed), that 'persons of livelihood and means should reside in their countries, and not abide or sojourn in the city of London, so that countries remain unserved.' James I. predicted that 'England would shortly be London and London England;' and, in one of his numerous addresses to the people, stigmatises 'those swarms of gentry who, at the instigation of their wives, or to new-model and fashion their daughters (who if they were unmarried married their reputations, and if married lost them), did neglect their country hospitality, and cumber the city, a general nuisance to the kingdom.' He urged the Star-chamber to regulate 'the exorbitancy of the new buildings about the city, which were but a shelter for those who, when they had spent their estates in coaches, lacqueys, and fine clothes, like Frenchmen, lived miserably in their houses like Italians.' A manuscript writer of the times complains of the breaking up of old family establishments, all crowding to 'upstart London.' 'Every one,' says he, 'strives to be a Diogenes in his house, and an emperor in the streets; not caring if they sleep in a tub, so they must be hurried in a coach, giving that allowance to horses and mares, that formerly maintained houses full of men; pinching many a belly to paint a few backs, and turning all the treasures of the kingdom into a few citizens' coffers, their woods into wardrobes, their leases into laces, and their goods and chattels into guarded coats and gaudy toys.'

The government, however, did not confine itself to mere fulminations on this subject; for new buildings were not only forbidden within ten miles of London, but even pulled down when they had been erected. Charles I. issued various proclamations, in which he complained of the continued residence of the nobility and gentry in town, which raised the price of provisions, increased the number of mendicants, and brought so many loose and disorderly people into the metropolis, that it could not be governed by ordinary magistrates. He ordered that persons of all ranks, who were not connected with

public offices, should resort to their several counties, and that 'they should not put themselves to unnecessary charge in providing themselves to return in winter to the said cities, as it was the king's firm resolution to withstand such great and growing evil.' Proclamations proving ineffectual, the Star-Chamber determined that they should no longer remain a dead letter; an inquisitorial examination of all strangers was ordered, and an account taken of their time of residence and departure. Prosecutions were instituted by the attorney-general; and one gentleman, a Mr. Palmer, from Sussex, was fined £1000 for disobeying the proclamation which ordered a residence in the country; and, to discourage all other gentlemen from living in town, the proclamation prohibited any pheasants, ducks, partridges, or hares, from being dressed or eaten in any inn. It is true, that these rigorous proceedings rendered the government obnoxious, and proved ineffectual; yet they were attempted to be renewed even after the Restoration.

What must the weak and tyrannical Stuarts have felt, had they, for the castigation of the country, continued to rule over us to the present times, when more houses are frequently built in a single year, than during the whole of their united reigns! It appears by the census of 1821, that London, including the borough of Southwark, contained the vast number of 161,905 houses, and that 3437 other houses were then building; and, when we consider that every month brings a large addition, it probably would not be too much to estimate the metropolis as containing at present 180,000 houses; nor are its limits, though the rage for building has been partially stopped, likely here to rest, according to present appearances.

Climate.—It would seem pretty well established that the climate of this country was in early times far more genial than at present. A writer of the thirteenth century tells us that a 'continued fall of showers throughout England for three days terrified many.' In ancient times, according to Mr. Bagford, there were vineyards in Hatton Garden, St. Giles, and East Smithfield; and the many Vine Streets in Westminster, Bloomsbury, Lambeth, and the borough, seem to have derived their name from the same source. This change, which the climate has undergone, appears to have chiefly taken place during the last century. Charles II., whose daily habits of walking about the metropolis gave him opportunities of correct observation on the subject, used to say, that there never was a day in which it rained so incessantly that a person could not take a dry walk for one hour out of the twenty-four.

The inhabitants of London, however, have less reason to complain of the deterioration of the climate than perhaps any other part of this country. We have noticed, *article ENGLAND*, the circumstance, not, perhaps, generally known, that the temperature of the air in the metropolis is raised by the artificial sources of heat existing in it, no less than 2° on the annual mean above that of its immediate vicinity; and the reader will there

find a table of the London temperature in the twelve different months of the year.

The usual range of the thermometer in London is from 5° to 95°. Even in the coldest seasons, however, the medium of the twenty-four hours, upon a long average, does not fall below the freezing point. Continued frost in winter is always an exception therefore to the general rule of the climate.

The most severe frosts of which we have any record were those of 1683, 1716, 1739, 1766, 1768, 1785, 1789, 1795, and 1814. Few of these, however, were peculiar to London; the greater number were, more or less, common to the whole of the north of Europe.

The frost of 1683, which is the first great one of which we have a particular account, appears to have been one of the most intense. The Thames was frozen to such an extent and depth, that even as far down as Woolwich the heaviest loaded carriages passed securely over it. From the Temple to Southwark it was covered with temporary shops and booths, arranged in streets and squares, where hackney-coaches plied as safely as on the terra firma of the metropolis. Shows and pastimes of all sorts diversified the scene; and the merry monarch himself, Charles II., mingled with his subjects in celebrating the novelty of a frost fair. In the night time the cold was so severe, that large fires were kept burning in Cheapside, Fleet Street, and other principal streets, to save from perishing those whose necessary avocations called them abroad; but notwithstanding this humane precaution, and the most commendable exertions on the part of the rich and benevolent to provide the poor with fuel at their own homes, many were the instances of persons in the lower walks of life being frozen to death. Wild ducks and other water fowl, driven from their native fastnesses to seek shelter in the haunts of men, dropped down dead in the public streets; and so general was the havoc among the feathered tribe, that in the ensuing summer scarcely a bird was to be seen. In other parts of Europe the cold was as severe as it was in England; particularly in Germany and France, where the number of human beings frozen to death appears to have been much greater than in England, owing, no doubt, to the inferior condition of the people of these countries, in all that regards the comforts and charities of life.

Next to the frost of 1683 in its disastrous consequences was that of 1739, which was also common to the whole of the north of Europe. The Thames was again completely frozen, but in a few days after so high a wind arose as to sweep every thing moveable from its surface. The number of the shipping in the river happened to be unusually great; and, locked up by the ice, they opposed a resistance to the fury of the wind, which made its ravages only the more destructive. Numbers were blown to pieces, and sunk; and all were, more or less, stripped and shattered. Never had the Thames, in the memory of those living, presented a more dismal scene of wreck and destruction. The damage done between London Bridge and the Medway was computed at not less than £100,000. Many

were the lives also lost upon this occasion; and severe the sufferings of the lower classes of people, although charity was again both active to save, and most liberal in its benefactions.

The frost of 1814 was, in some respects, even more memorable than those of 1683 and 1739. It was probably not so severe as either, and the injury which it committed was inconsiderable; but it served to exhibit in a remarkable manner the progress which a free people have made in those attainments, which help us to set the seasons themselves at defiance. As in the days of the gay Charles, mirth and jollity again joined hand in hand to soften the rigors of the icy year; but, among other novelties, we beheld what in Charles's days would have been more dreaded than even perpetual frost—a free press erected on the now solid deep, to commemorate the wonders of the scene.

River Thames.—The conservancy of the Thames belongs to the city of London westward as far as Staines, a little above which it enters the county of Middlesex. See THAMES. Nothing can be more picturesque than its now devious course towards the metropolis, graced with 'such fields, such woods, such stately piles, and such gardens,

That Thames with Roman Tiber may compare.'

At Putney and Battersea, the Thames, which has received the tributary streams of the Colne, the Wey, the Crane, the Brent, and the Wandale, has become a large and busy stream, and at these places is crossed by two wooden bridges. At Vauxhall it is crossed by a light and beautiful iron bridge, and between this place and the tower by four other bridges.

After running through the metropolis the river rolls onward past Deptford, Greenwich, and Gravesend, until, joined by the Medway, they pay their joint tribute to the ocean, at the Nore. In London it is from 800 to 1500 feet, and at the Nore seven miles broad. It is navigable nearly 143 miles above London Bridge: its whole length is upwards of 180 miles; and the tides, which ebb and flow twice every twenty-four hours, affect it upwards of eighty miles from the sea. The Thames has also its spring tides, and is remarkable for the inequality of its tides, a subject much dwelt upon by the early historians, who considered every deviation from the ordinary flow and ebb as a prodigy. It is related, that on the 12th of October, 1411, and on the 17th of September, 1550, the Thames flowed thrice in one day. In the years 1564, 1574, 1608, 1609, 1622, 1653, 1654, and 1660, similar phenomena occurred, all of which might, no doubt, have been traced to very natural causes had they been observed at the time.

The Thames has sometimes overflowed its banks considerably in the metropolis. The most memorable instance of this sort was on the 1st of September, 1555, when, in consequence of heavy rains and a high wind, the river was forced into the king's palace at Westminster, and into Westminster Hall, a circumstance particularly unfortunate, as it was the day on which the lord mayor of London had to present the sheriffs to the barons of the exchequer. Stowe says,

'all Westminster Hall was full of water,' but he does not inform us whether the city magistrates presented the sheriffs in a boat or not, though he informs us by report that morning, that, 'a wherrie man rowed with his boate over Westminster Bridge into the Palace Court, and so through the staple gate, and all the wooll staple into the king's streete.' All the marshes on the Lambeth sides were also so overflowed, that 'the people from Newington Church could not pass on foote, but were carried by boates from the said church to the Pinfold, neere to St. George's in Southwark.'

In 1774 was another great overflow; and again on the 2d of February, 1791, when considerable damage was done to the wharfs along both sides of the river. Westminster, which always suffered most from an inundation of the Thames, saw boats plying, instead of hackney coaches, in Palace Yard and Privy Gardens, like Egypt watered by an over-bountiful river.

In the winter of 1821 the Thames again burst its bounds; though neither promoted by an easterly wind, nor a sudden thaw. It appears by an official report presented by officers appointed to make a survey of the river, that the flood rose four inches higher than it did in 1774, as recorded by a stone let into a wall at Isleworth. The original editor of this work had on this occasion to pay a severe penalty for his general enjoyment of a very pleasant situation on the bank of the river. Its classic stream was not at this time 'strong without rage,' for it burst every barrier with which his cottage could be fenced; and flooding his library, to the depth of eighteen inches, scattered his papers remorselessly on the surface of six successive tides. Considerable damage was done above Westminster Bridge, yet the navigation of the river in the city district was never an hour impeded.

At Staines (Sax. stana a stone) is a stone which marks the limits of the city's authority, and bears the early date of 1280. During the mayoralty of Sir Watkin Lewes, in 1781, it was placed on a new pedestal. The city jurisdiction extends eastward to Yendal or Yenleet, and includes also part of the Medway and the river Lea.

The conservancy of the Thames has been claimed by the city of London ever since the reign of Richard I., who, for a sum of 1500 marks, granted a charter which empowered the city to remove all weirs from the river. The authority claimed under this charter was afterwards confirmed by more explicit enactments. The power of the citizens not merely extended to the water and the fish, but to the actual bed of the river, so that, according to a manuscript in the papers of lord Burleigh, quoted by Strype, they have the ground and soil under the river, 'whereupon if any that hath a house or land adjoining do make a strand, stairs, or such like, they pay forthwith a rent to the city of London.'

The authority of the city was long disputed by the lord high admiral of England, until the decision of a court of justice, and the confirmatory charter of James I., fixed the conservatorship of the Thames in the hands of the city, to be exercised by the lord mayor for the time being, or his deputy, an officer with the title of water bailiff,

who protects the rights of the city, and its authority over the river.

The lord mayor holds a court of conservancy eight times a year, at any place he pleases within the city jurisdiction, on the banks of the river, either in Middlesex, Surrey, Essex, or Kent. The jury attendant on the court is always summoned from the county in which it is held. In order to hold the court, the lord mayor, with the necessary officers, proceeds in state in the city barge, and is often accompanied by some of the barges of the companies, who render it an agreeable aquatic excursion. Once in every seven years his lordship traverses the whole limits of his jurisdiction on the Thames and the Medway.

A material part of the duty of the water bailiff is to regulate the watermen who ply on the river, and who are a very numerous body, amounting to upwards of 12,000, two-thirds of whom are freemen of the city. As far back as 1556, they were incorporated by act of parliament, and have their rulers and overseers; but the general government and superintendence of the body is vested in the city magistracy, who are empowered, by a statute passed in the 34th of George III., to make rules and orders for the government of watermen, wherry-men, and lightermen, between Gravesend and Windsor, and to enforce observance of them by penalties and forfeitures. The wherries belonging to this fraternity are required to be twelve feet and a half long, and four feet and a half broad in the midship; they are all numbered, and the rates of fare fixed, for any exaction beyond which the offender may be punished, on complaint being made at Watermen's Hall (on St. Mary's Hill). In point of fact, however, but little regard is paid to the established list of fares, which are very generally exceeded, and as generally acquiesced in, from a feeling, we believe, that they are rather less than they ought to be. Among other regulations for the good conduct of the watermen, they are particularly cautioned against the use of improper and immodest language; and offenders in this respect are punishable by fine. By an act of parliament of the 11th & 12th of William III. the lightermen were united to the watermen, and placed equally under the jurisdiction of the city magistrates.

The Thames westward has several locks, without which, owing to the great number of shoals, it would not be navigable in summer. The locks within the city's jurisdiction, according to a return made to an order of the house of commons, yielded to the city a revenue of £12,506 7s. 1d. for the year ending the 29th of September, 1822. Upwards of £1000 had, however, to be deducted for the incidental repairs. The profits of the locks have been a good deal injured by canals, yet the interests of the city have been protected; since we find, in the same parliamentary return, that the Grand Junction Canal Company paid to the city £600 for compensation for loss of toll that year; the Regent's Canal Company £450; and even the Surrey Iron Railway Company £10.

The immense property continually lying in shipping in the river Thames was long subject to the most daring depredation. The robbers

were indeed so numerous, that they were divided into classes. The river pirates formed the most desperate class. They plundered ships and small craft in the night; and have been known to weigh a ship's anchor, and hoist it with the cable into the boat; and when discovered, to tell the captain what they had robbed him of, and row away bidding him a good night. The night plunderers consisted of watchmen, who, formed into gangs of five or six each, used to lighten every vessel they could get to of some portable articles of her cargo, while a receiver was always in readiness to purchase the spoils of the night. These night plunderers have frequently been known to cut lighters adrift, and follow them down the river, to a place where they could more successfully carry off the cargo, which they have sometimes done completely. The light horsemen confined their depredations to West India ships, and originated in the connivance of the revenue officers at a connexion established between the mates of the vessels and some receivers on shore. In all West India ships there is a quantity of sugar spilt in unloading the cargo, which is claimed as a perquisite by the mates, and sold. The purchasers of these sweepings, however, by a bribe of forty or fifty guineas, often succeeded in getting on board the ships, and opening the hogsheads and taking as much as they could, by the assistance of coopers and watermen, carry away with them. They were provided with black bags, which they called black strap, and these were often filled and emptied during a night. Puncheons of rum were also drawn by means of a small pump. The heavy horsemen, another class of river plunderers, went on board ships, either by connivance, or in the day, under the pretext of selling some articles. They were provided with peculiar dresses, which had pockets all round, and bag bladders and pouches affixed in various parts, which they filled with sugar, coffee, cocoa, or any portable articles they could lay their hands on. In the night they would frequently plunder more largely, and boats, rowed by what were called game watermen, were constantly near the ships, ready to receive the stolen property and conduct them on shore. So active were the heavy horsemen, that they frequently made five guineas a night, and an apprentice to the game waterman has been known to keep a country house and a saddle horse. The mud larks, the scuffle hunters, the copemen, and several other classes of depredators, were not confined to any particular branch of plunder, but were ready, either as principals or auxiliaries on all occasions.

The coal-heavers, of whom there were 1200 or 1400 constantly engaged on the river, were in the constant practice of each man taking his sack of two or three bushels of coals when he went on shore during the unloading of a ship. Neither the captain nor the owner of the ship and cargo durst resist their taking what they considered as a perquisite, and when they found a boat ready to sink with their plunder, they conceived themselves the injured party.

Some idea may be formed of the success of these plunderers, when it is stated, that the loss of various classes of property on the river, pre-

vious to the formation of the docks and the establishment of marine police, was £500,000 annually, of which, according to an averaged estimate of some years, the West India trade suffered annually to the amount of £232,000; the East Indies, £25,000; the United States, £30,000; and the coal trade alone, £20,000.

Such was the state of the cargoes in the river Thames, until, in the year 1797, Mr. Harriott formed a plan of marine police, which, by the aid of Mr. Colquhoun, he was enabled to carry into effect; and so successful was the system thus formed that in the first year the saving to the West India merchants alone was upwards of £100,000, and to the revenue more than half that sum. In the same period, no less than 2200 culprits were convicted for misdemeanors on the river; while now the instances of street robberies are so rare, or so unimportant, that they are scarcely ever recorded.

Various amusements have at different times taken place on the Thames, adapted to the taste and character of the age. The water quaitain has, however, altogether ceased, and at present rowing and sailing matches seem the only sports with which it is occupied. Of these, one of the most remarkable is the competition for a coat and silver badge, which Dogget the player appointed to be rowed for, annually, by six watermen, on the 1st of August, being the anniversary of the accession of the House of Hanover to the throne. The competitors set out on a signal given, at that time of the tide when the current is strongest against them, and row from the Old Swan, near London Bridge, to the White Swan, in Chelsea.

Smaller rivers and supply of water.—Nothing has contributed so essentially towards preserving the health of the inhabitants of London from disease, or their property from conflagration, as the abundant supply of water with which every street, and even every house, is furnished. Before the metropolis had become extensive, it was watered by several small brooks, independent of the Thames. One of these, which was successively called the river of Wells, Turnmill Brook, and the river Fleete, or Fleet Ditch, ran from Bagnigge Wells, through Clerkenwell, between Saffron Hill and Turnmill Street, under Holborn Bridge, and down Fleet Market into the Thames. It was once very considerable, turned a great number of mills in its course, and must have been navigable from the Thames to Holborn at the least; for, in a parliament, held at Carlisle in 1307, the earl of Lincoln complained, that ‘whereas, in times past, the course of water running at London under Oldbourn-bridge and Fleet-bridge into the Thames, had been of such breadth and depth, that ten or twelve ships’ navies at once, with merchandizes, were wont to come to the aforesaid bridge of Fleet, and some of them to Oldbourn Bridge; now the same course, by filth of the tanners and such others, was sore decayed.’ Tradition would carry the navigation much higher, since it relates, that an anchor was found in this river at Pancras-wash, where the road branches off to Somer’s-town. This river is now, by rapid rains or sudden thaws, sometimes much overflowed, as was the case in 1809 and 1817-18.

Another small river, called *Wallbrook*, from the wall thrown over it, ran through the city in a serpentine direction, from the north down by the present Mansion House, and the street now called Wallbrook, into the Thames. This brook, which was necessarily crossed by numerous bridges, was vaulted over with brick, and in many parts covered with houses.

A third rivulet, which was called Langbourn, on account of its length, originated in an overflowing spring in Fenchurch Street, which ran down Lombard Street, and turned south down Sherbone Lane (then called Sharebourne, from its sharing or dividing the bourne or brook into small rills of water), whence it flowed into the Thames. This brook was stopped at the source, though its name is still retained in Langbournward.

Oldbourn, now Holborn, was a brook which issued from a spring near Middle Row, and ran down at Holborn Bridge, into the river Fleet.

In the suburbs were several very excellent wells, as Holywell, Skinner’s-well, Clement’s-well, Clerkenwell (so called from the parish-clerks of London assembling there annually to act plays or interludes, founded on Scripture), with several other smaller wells. To the wells and the brooks are to be added pools, which, though not contributing to the health of the city, supplied water for various uses. Of these the principal was in Smithfield, and was called Horsepool, on account of the inhabitants watering horses there. This pool, which was at one time walled round with brick, was filled up in the improvements that took place in Smithfield after the fire of London. Near St. Giles’s church, Cripplegate, there was a large pool, in which Anne of Lodbury was drowned in the year 1244. North of Holywell there was a pool, called Agnes le Clair; and, not far from it, another sheet of water, which was called Perilous Pond, on account of several youths who went to swim in it having been drowned. This Perilous Pond has since been converted into a bath, under the name of Peerless Pool.

The pools being filled up, and the brooks covered, the inhabitants found it necessary to look to other sources, for a supply of water. In 1236 one Gilbert Sandford obtained a grant from Henry III., to allow him to convey water from the town of Tyburn, by pipes of lead, into the city. The work was soon carried into effect, and a leaden pipe, of six inches bore, conveyed the water, from six wells in the neighbourhood of Tyburn, to conduits that were erected to receive it in various parts of the city. The first, and one of the principal conduits, was in West Cheap, now Cheapside, and was erected in 1285: it was a cistern of lead, castellated with stone. Other conduits and bosses were erected in several parts of the town.

In 1438 Sir William Eastfield, knight of the Bath, then lord-mayor, brought water from Highbury Barn, as well as from Tyburn, to London, and caused conduits to be erected in Fleet Street, Aldermanbury, and Cripplegate.

In 1535 the common council granted a sum of money for bringing water from Hackney to Aldgate, where a conduit was erected; and,

this being insufficient, fresh supplies were afterwards obtained from St. Mary-le-bourn, Hackney, Hampstead Heath, Muswell Hill, &c. One of the principal conduits was between Snow Hill and Holborn, and was built, or rather rebuilt, by William Lamb, a gentleman of the chapel to king Henry VIII. in 1577, at an expense of £1500. This conduit was supplied from another, erected by the same gentleman at the north end of Red-Lion Street, called Lamb's Conduit.

The conduits were formerly visited and inspected, with great ceremony, by the lord mayor and corporation. Strype relates, that, on the 18th of September 1562, the lord mayor, aldermen, and many worshipful persons, after inspecting the conduit heads, hunted a hare, which they killed, and then proceeded to a dinner at the head of the conduit, where they were handsomely entertained by the chamberlain. After dinner they went to hunt the fox: 'there was,' says he, 'a great cry for a mile, and, at length, the hounds killed him at the end of St. Giles's, with great hallowing and blowing of horns at his death.' But, though the number of conduits was considerable, they were found insufficient, and many citizens were obliged to fetch their water from the Thames. In those times, persons were regularly employed to convey water from the river, or the conduits, to the houses, which they did in vessels, called tankards, that held about three gallons. They were hooped round, like a pail, and were, in figure, like the frustum of a cone. They had a small iron handle at the upper end, like an alehouse pot, and, being fitted with a bung or stopple, were easily portable. These water-bearers and their tankards are alluded to in Ben Jonson's comedy of 'Every Man in his Humor.'

In the year 1582 one Peter Maurice, a German, proposed to supply the city with water by means of machinery. In order to prove his skill, Maurice made an experiment before the lord mayor and aldermen, by throwing the water over the steeple of St. Magnus's church, with which they were so much pleased that they granted him the use of the Thames water, and one arch of London Bridge, on lease for 500 years, on condition of paying 10s. yearly to the city. He then erected his water-works on the north side of the river; and, finding that he had not room enough, he procured, two years afterwards, the grant of another arch of the bridge for a similar term. By these works, which supplied a considerable portion of the east of the city, Maurice and his descendants made a large fortune. In the year 1701 the proprietor sold his right in the London Bridge water-works for £38,000 to Richard Soams; who, obtaining a renewal of the leases from the city, and the liberty of occupying two more arches of the bridge, divided the property into 300 shares of £500 each, an operation by which he made a clear profit of above £100,000.

During the reigns of queen Elizabeth and king James I. acts of parliament were granted for the better supplying of the metropolis with water; but they were not carried into effect, until Mr. Hugh Middleton, a native of Denbigh, and goldsmith of London, undertook to bring the water

from Chadwell and Amwell, near Ware in Hertfordshire, a distance of upwards of twenty miles. The work was begun on the 28th of February, 1608, and concluded in five years. The course of the river extends about thirty-nine miles, being in a serpentine direction, and there are upwards of 200 bridges over it. The great reservoir, called the New-River Head, is at Islington, into which the water was first let in, on Michaelmas day 1613, the day on which Sir Thomas Middleton, the brother of Sir Hugh, was elected mayor. On the opening of the basin, the lord mayor, the lord mayor elect, the aldermen, &c., rode to see it; when a company of sixty laborers, well and uniformly clothed, preceded by drums, and accoutred with spades, shovels, and pick-axes, marched twice or thrice round the cistern, and then presented themselves before the visitors, when one of the workmen delivered an address, written for the occasion, which thus concluded:—

Now for the fruits; then flow forth, precious spring,

So long and dearly sought for, and now bring
Comfort to all that love thee! Loudly sing,
And with thy crystal murmurs struck together,
Bid all thy true well-wishers welcome hither.

At the conclusion of these words, 'the flood-gate flew open, and the stream ran swiftly into the cistern, with drums and trumpets sounding, and guns firing in a triumphant manner.'

The main pipes of the New River company were originally of wood, but they are now almost entirely of cast iron. A large basin has been constructed in the Hampstead-road, which receives its water from Islington, in order to supply the western parts of the town. The number of houses supplied by the New River is upwards of 56,000, which is continually increasing, particularly since the water-works have been recently taken down at London Bridge.

The New River was, however, long an unprofitable speculation, and, for nineteen years after it was finished, the seventy-two shares, into which it was divided, did not yield a profit of more than 12s. each. These shares, in the course of time, were sold as high as £14,000 each; and although, at the present moment, they are unproductive, in consequence of the great expense incurred in substituting iron for wooden pipes, yet they are considered valuable. As for the projector of this great work, his only reward was a ruined fortune, and a barren title. Mr. Middleton was created a baronet, and there is an entry in one of the Cottonian MSS. in the British Museum, stating, that the fees of the creation were to be remitted to him.

There are several other water companies in London and its suburbs, the relative importance of which will be seen from the quantity of water supplied by each, which we are enabled to collect from the evidence adduced before a committee of the house of commons in 1821.

In 1808 and 1809 the New River, on an average of the two years, supplied London with 78,110,000 hhdls., or 4,217,940,000 galls. of water annually, to 59,058 houses and buildings, occupied by 42,960 tenants, who paid an annual

rental to the company of £80,782. In 1820 the New River, including the York Building water-works, established in the reign of Charles II., supplied 67,000,000 hhd. to 52,082 houses, and 38,535 tenants, on a rental of £68,297.

In the same year the Chelsea water-works, which were formed in 1721, supplied 7,533,900 hhd.; the London Bridge works 26,322,705; the East London works 29,516,333; the Grand Junction water company 13,104,100; and the West Middlesex works 11,904,000. These form an aggregate, in the year 1820, of 155,381,038 hhd. of water, supplied to 120,732 houses, and yielding a rental of £175,890 annually. So effective is the machinery of these water-works, that they can force water into the rooms of every house, to the height of 100 feet if required.

The docks.—Connected both with the commerce of the metropolis and the river is the establishment of closed docks, which have been of the most decided service to the revenue and trade of the country—to quote the words of the report of the parliamentary committee on the West India docks, in June 1823, ‘the value of these institutions, whether in giving facility to commerce, in securing the collection of the revenue, or in protecting the interests of the merchants, is so unquestionable, that it would be an unnecessary waste of time to enter into any detailed discussion on the subject.’

The insecurity in which the property of the river was placed, and the daring plunder committed on it, which has already been noticed, no doubt first led to the formation of the commercial docks. The most important of these are the East India, the West India, and the London docks; there is also the East Country dock at Rotherhithe, near the king’s victualling-office, which is appropriated to the Baltic and American trade, the fisheries, &c. It will contain eighty ships.

The West India docks are situated in that peninsular part of the environs of London called the Isle of Dogs, and they communicate with the Thames at Limehouse on the west, and at Blackwall on the east. They were commenced on the 12th of June 1800, and finished in August 1802. The docks, and the ground belonging to them, occupy an area of 204 acres. The dock for unloading inwards is 2600 feet long, 510 wide, and twenty-nine feet deep; it is built round with brick-work five feet thick: the dock for loading outwards is similarly constructed, and of the same dimensions except in the width, which is only 400 feet narrower than the other. The entrance basin at Blackwall, which communicates by means of two locks with the import and export docks, occupies a space of six acres: the basin on the Limehouse side, which also has a communication with both docks, is somewhat smaller. The warehouses which surround the docks are necessarily of immense magnitude, and they are built in a style of neatness that would render them an ornament to any part of the metropolis. The expense of these docks, which have rendered an inestimable service to its trade, was £1,200,000.

During the construction of these docks, the ballast which formed a barrier between the dock

and the Thames was driven away, and, the water rushing in from the river, several persons were killed. The largest dock was completed and opened for the reception of the water on the 3d of August 1802; and such is the extent of this artificial lake, that, although the water flowed in at the rate of from 500 to 1000 gallons in a second, yet the great dock was not completely filled a sufficient depth until six o’clock the next morning, being ten hours. On the 3d of September the grand ceremony of receiving the first ship took place, when the Henry Addington, a new-built West India vessel of 350 tons burden, was towed in by ropes amidst the cheers of at least 10,000 spectators.

The proprietors of the West India docks are an incorporated body, under the title of the West India Dock Company, and they are reimbursed by a tonnage on the vessels that enter the docks, and a per centage for landing, weighing, and warehousing the cargoes. Near the docks is a school, established by the company for the accommodation and instruction of apprentices in the West India trade during the time that the vessels are in dock. The boys are taught reading, writing, and arithmetic, and the elementary principles of mathematics and navigation.

Parallel with the docks there is a canal, which enables vessels to save a distance of a mile and three quarters by avoiding the circuitous navigation round the Isle of Dogs. This canal, which is three quarters of a mile in length, and 200 feet in width, was cut pursuant to an act of parliament passed in 1799, at an expense of £133,849 12s. 6d. For the first three years after it was formed a small duty was charged on all vessels that passed through it.

The East India docks are farther down the river than the West India docks, though at no great distance from them: they consist also of an import and an export dock; the former, covering an area of eighteen acres and a half, is 1410 feet long, 560 wide, and thirty feet deep; the latter, which is of equal depth, is 780 feet long, 520 wide, and covers a space of nine acres and a half. The entrance basin occupies an area of two acres and three quarters. The largest dock is sufficiently capacious to admit at the same time twenty-eight East Indiamen, with double that number of smaller vessels. When the goods are landed, they are conveyed along the East India dock and Commercial Roads to the company’s warehouses in covered waggon, which are well secured against all depredations.

The London dock, situated in the parish of St. John, Wapping, was formed for the same purpose as the East and West India docks—the facilitating the unloading of vessels, and the safe custody of the cargoes. This dock, which is not confined to any particular branch of commerce, is 1262 feet long by 699 wide, and in depth twenty-nine feet. It is capable of containing 200 sail of merchantmen, and was constructed at an expense of £1,200,000. The dock, which is entered through a basin, opposite Wapping Old Stairs, capable of containing several sail, was opened on the 1st of February 1805, when the *Perseverance* of Liverpool, the oldest vessel in the Oporto trade, decorated with the flags of all

...ons, not excepting the French, with whom we were at war, sailed majestically into the dock, which is nearly surrounded by a quay of 100 feet in width. The warehouses are immense, particularly two appropriated to the reception of tobacco, which are under the direction of the officers of the customs. One of these warehouses is 762 feet long and 160 wide; the other 250 feet long and 200 wide. Underneath these warehouses are cellars, in which there are seldom less than 7000 pipes of wine. The London dock water is said to be very injurious to health, and the verdigris generated here will act as a poison on the stomach. In addition to the basins here mentioned, is St. Katherine's dock, close to the Tower, where vessels of 800 tons burden have often been admitted; and on the south side of the river are the Greenland or Commercial Docks, and those connected with Surrey navigation.

THE BRIDGES.—At what period a bridge was first thrown over the Thames, between *London and Southwark*, seems doubtful. The first notice we have of its existence occurs in the laws of Ethelred II., which fix the tolls to be paid on all vessels coming up to the bridge. William of Malmshury also mentions this bridge, in his account of the sieges which the city sustained on the invasion of England by the Danes, under Sweyn and Canute. That the bridge was erected between the years 993 and 1016 is inferred from the circumstance, that in the former year, Unlaf the Dane is said to have sailed much higher up the river; and that, in the latter year, Canute's progress was impeded by it.

The first bridge, which consisted entirely of timber, was not, as Stowe affirms, constructed by the convent of St. Mary Overy, but at the public expense, and in a different place from the present one, as we learn from a charter of William the Conqueror to Westminster Abbey, which mentions it as directly opposite to St. Botolph's gate and wharf. The bridge was burnt in 1136, but not totally destroyed; it was repaired, but decayed so rapidly, that in the year 1163 it was taken down, and entirely rebuilt of timber. The expense of keeping it in repair was, however, so great, that in 1176 a new one of stone was begun to be erected on the present site. The most active promoter and superintendent of this building was a priest, called Peter of Colechurch, who was well skilled in architecture, and who has hence acquired the credit of being its founder; but the king, Henry II., the archbishop of Canterbury, and several merchants of London, contributed largely to it. The aid granted by Henry II. to the bridge was in the form of a tax on wool, levied for the purpose; and hence arose a vulgar tradition, that 'London-bridge was built on woolpacks.' It was constructed on piles, principally of elm, which have remained for six centuries without material decay. On the piles, long beams of timber, ten inches thick, were placed, strongly bolted together, and the lowermost stones were embedded in pitch, in order to resist the water.

In 1202 king John appointed Isenbert of Xainctes to finish the bridge, Peter of Colechurch being either dead or incapacitated from

attending to it. The same monarch gave the profits and rents of several plots of ground, sold or let for building, towards the building and repairing of the bridge; and, during the same reign, the master mason built a large chapel on the centre arch, at his own expense, which was dedicated to St. Thomas à Becket.

The erection of chapels on bridges is of the highest antiquity, and, no doubt, originated from the custom of making sacrifices on bridges, whence Plutarch has derived the word Pontifex. The most remarkable bridge of this sort was at Droitwich, where the high road passed through the chapel, and divided the congregation from the reading-desk and pulpit. The priests attached to the chapels were commissioned, as an indispensable part of their office, to keep the bridge in repair; and hence, although Stowe is wrong in stating, that London Bridge was built by the priests of St. Mary Overy, it is not improbable that they were enjoined to repair it, in accordance with the ancient custom. The chapel on London Bridge was at first endowed for two priests and four clerks, and in the reign of Henry VI. it maintained four chaplains.

Four years after the bridge was finished, it was the scene of a very tragical accident. In the night of the 10th of July, 1213, a fire broke out in Southwark; when the bridge became crowded with people, all hastening from the city, either to witness or extinguish the conflagration. The flames, catching St. Mary Overy's church, were, by a strong southerly wind, extended to the Southwark end of the bridge: those who were foremost in the advancing throng endeavoured, but vainly, to fall back from the destroying element; the multitude on the London side, ignorant of the danger, continued to press unyieldingly forward, and, in this tumultuous conflict, numbers were trampled to death; others leaped into the river, to find only a watery grave; while many more perished miserably in the flames. Not less than 3000 lives are stated to have been lost on the occasion. It is supposed, that at this period the only building on the bridge was the chapel of St. Thomas à Becket; nay, it has been said, that even as late as 1395, 'the bridge, at that time, was only coped on each side, and not replenished with houses.' (Seymour and Marchant). That, at least, the last statement is erroneous, is, however, quite certain; for among the records, preserved in the tower, there are letters patent of Edward I., by which, in 1280, he authorises a collection to be made throughout the realm, for the repair of London Bridge, which is there described to be in such a ruinous condition, that 'unless speedy remedy be put, not only the sudden fall of the bridge, but also the destruction of innumerable people dwelling on it, may suddenly be feared.'

The subscriptions obtained under the letters patent of Edward I. being found inadequate to the execution of the repairs wanted, Edward, in 1281, ordered a toll to be levied, during three years, on all persons crossing the bridge with merchandise, and on 'every saleable pack.'

Whenever it was necessary for the sovereign to cross the bridge, he was treated with great magnificence by the citizens. Richard II. and

his young queen, Anne of Bohemia, were met by the citizens 'at the gate of the brigg of London,' says an old chronicler, 'where they presented him with a mylk-white stede, sadled and bridled, and trapped with cloth of gold and rede parted togedre; and the quene, a palfry all white, and in the same way trapped with white and rede, while all the condites were rounen with wyne, bothe whyte and rede, for all maner of peple to drynke of.'

In 1282, on the breaking up of the river after a great frost, five arches of the bridge were carried away; and, though these appear to have been immediately restored, yet in 1289 the bridge was again so much decayed, that people were afraid to pass over it. A new collection was, therefore, made throughout the kingdom for its repair, and that yielding, as before, but little, it was found necessary, in 1298, to revive the toll on goods and passengers.

The bridge was now so encumbered with houses, that the broad way between them did not exceed twelve feet in breadth; yet it appears to have been employed as a sort of joint mart for the inhabitants of the city and those of the borough. The first order of common council upon record is one of 1277, prohibiting 'any market from being held on London Bridge.' What had been a theatre for the quarrels of costermongers, became afterwards the chosen spot of jousts of a higher order. On St. George's day, 1395, there was a grand jousting match upon London Bridge, at which the lord Wells engaged to maintain the renown of England against all comers. A stout Scotsman, David, earl of Crawford, entered the lists, and at the third course, threw the English champion out of his saddle.

In 1471, when Falconbridge was repulsed in his attempt to seize the city, several houses on the bridge were burnt down by the disappointed invaders. The next remarkable conflagration took place in 1632, when forty houses were destroyed. The Thames being frozen over at the time, water could not be obtained, and the fire continued burning in the vaults and cellars upwards of a week. All the houses destroyed on this occasion had not been replaced, when the great fire of 1666 caused a still greater devastation.

Amidst the general improvements for which that calamity paved the way, the bridge was not neglected. The whole of the houses, from one end to the other, were taken down, with the exception of one house at the north end, which had been constructed in Holland, and was called the Tower of London Bridge, or the Nonsuch, from its not having a single nail in it, but being pinned together with wooden pegs. New ones were erected of a uniform breadth and elevation; and three vacancies left at equal distances, from which a view of the river might be obtained. The Nonsuch occupying the whole breadth of the bridge, the archway under it was raised to the height of two stories, and over it the following inscription was placed:—

Anno MDCLXXXV., et primo Jacobi II. Regis.

This street was opened and enlarged from twelve to the width of twenty feet.

Sir James Smith, knight, Lord Mayor.

The bridge itself consisted, as at present, of nineteen arches, the highest of which rises sixty feet above the water level.

The three widest of these arches used to be called The Navigable Locks, from their being the only ones which afforded an easy passage for vessels. The one nearest to the London side was particularly distinguished by the name of the Rock Lock, in consequence of a strange imagination among the vulgar, that there was a growing or vegetating species of rock beneath the water at this spot. It appears, from many subsequent observations, that this growing rock was nothing more than a collection of fallen materials; some former arch or coping—which, by serving as a nucleus for the deposits of millions of tides, has given rise to the popular and metaphorical notion.

The arch nearest of all to the London side was formed of a drawbridge; and, as late as 1722, such were the ideas which then prevailed of the means by which the invasion of enemies is best resisted, that the corporation did not grudge the expense of laying down a new one, nor the public the interruption occasioned by this idle project for adding to the security of the capital.

Besides the Nonsuch Tower at the city end of the bridge, there was another at the Southwark end, and to each there were gates with posterns for foot passengers. It was on the last of these towers that the heads of traitors in later times were exposed, when the citizens of London, falling into a distaste for such marks of civilisation, chose to remove them from their own end of the bridge. As late as 1598 Hentzner, the German traveller, relates, that he counted on it above thirty heads.

In 1756 an act of parliament was obtained for improving the bridge, and a temporary wooden bridge was constructed while the repairs were going on; but, with the fate common to wooden bridges, the latter was destroyed by fire the 11th April, 1759. The two centre arches of the stone bridge were now thrown into one; and the remaining houses, which were principally occupied by pin and needle makers, were taken down, and the bridge put into that state in which it now appears.

On the opening of the great arch, the excavation around and under the starlings was so considerable, that the bridge was thought to be in great danger of falling. Mr. Smeaton, the engineer, was then in Yorkshire, but an express was sent for him, and he arrived with the utmost despatch; when the apprehensions of the bridge falling were so general, that few persons would pass over or under it. Mr. Smeaton having ascertained the state of the starlings, and called the committee together, recommended that they should re-purchase the stones that had been taken from the middle pier, then lying on Moorfields, and throw them into the river to guard the starlings. Nothing shows the fears entertained for the stability of the bridge more than the alacrity with which his advice was adopted. The stones were re-purchased that day, and on the following morning the work commenced, which in all probability preserved the bridge from falling, and secured it until more effectual methods could be

taken. This famous old bridge, with the history of which that of London is so intimately connected, has been wholly removed, and a noble bridge of five arches, of granite stone, erected near the same site. The new London bridge was opened to the public on the 1st of August, 1831.

London Bridge is the greatest thoroughfare across the river. In one day in July, 1811, 39,640 foot passengers, 769 wagons, 2924 carts and drays, 1240 coaches, 485 gigs and taxed carts, and 764 horses, passed over it.

It is in no small degree surprising that a city like London, which had grown to such magnitude and opulence, and extended for miles along both banks of a mighty stream, should, till so late a period as the middle of last century, have had but one bridge across the river. It makes probable a statement of Strype's, which seems at first sight very exaggerated, namely, that in his time there were no less than 40,000 watermen upon the rolls of the watermen's company; now they do not much exceed 2000. The great inconvenience which the inhabitants of *Westminster* suffered from the want of a bridge at that end of the metropolis, led them at length, in 1734, to apply to parliament for powers to erect one from New Palace Yard to the opposite shore in the county of Surrey. Strong opposition was made to the measure by the city, the inhabitants of Southwark, the watermen, and the west country bargemen, who were all liable to suffer in their peculiar interests by such an erection; but the interest of the public very properly prevailed, and the act was granted. The first stone of the bridge was laid on the 29th of January, 1738-9, by Henry, earl of Pembroke, and the last on the 10th of November, 1750, by Thomas Lediard, esq. It is from wharf to wharf about 1223 feet long; the width is about forty feet, and on each side there is a high balustrade of stone, with semi-octangular alcoves, to serve as places of shelter from the rain. The free water way under the arches extends to 870 feet; the arches are fifteen in number; the centre one is seventy-six feet wide; the others diminish in width by four feet equally on each side; the two smallest ones close in shore to the abutments are each about twenty-five feet wide. The whole edifice is of stone, and rests upon a gravel bed, the piers having been sunk for that purpose to from five to fourteen feet under the bed of the river. When the work was nearly finished, in consequence of the incautious removal of some gravel from the bed of the river, immediately joining one of the piers, it sunk so far as to damage the incumbent arch to such a degree, that it was thought proper to have it pulled down and rebuilt. But for this interruption, the bridge would have been finished three years earlier. The total expense of the bridge, which was defrayed by parliament, amounted to £389,500. The architect was an ingenious Frenchman of the name of Labelye.

While Westminster Bridge had no rival but that of London, or only Blackfriars, it was esteemed one of the noblest structures of the kind in the known world; but since the erection near it of Waterloo Bridge, it seems to have lost

much of the grandeur which it possessed; and, although not a century old, it has suffered greatly from the decomposition of its stone.

When a person whispers against the wall of any of the alcoves of this bridge, the sound is very distinctly conveyed across to the corresponding alcove on the opposite side, notwithstanding all the noise occasioned by the passing of carriages, &c.

Blackfriars, originally called *Pitt's Bridge*, was begun in 1760, and occupied nine years in its erection. 'On the last day of October,' says an inscription on a tin plate on the foundation stone of the edifice, 'in the year 1760, and in the beginning of the most auspicious reign of George III., Sir Thomas Chitty, knight, lord mayor, laid the first stone of this bridge, undertaken by the common council of London (in the height of an expensive war), for the public accommodation and ornament of the city; Robert Mylne being the architect; and that there may remain to posterity a monument of this city's affection to the man, who by the strength of his genius, the steadiness of his mind, and a kind of happy contagion of his probity and spirit (under the divine favor and fortunate auspices of George II.) recovered, augmented, and secured the British empire in Asia, Africa, and America, and restored the ancient reputation and influence of his country among the nations of Europe; the citizens of London have unanimously voted this bridge to be inscribed with the name of William Pitt.' How evanescent a thing is this city affection! Of all the thousands who now pass this bridge daily, how few are aware of the fact which this inscription records! The compliment which the citizens of 1760 unanimously voted, the citizens of later times have refused to confirm, and Pitt's bridge is now styled, beyond all hope of alteration, *Blackfriars*.

The expense of this bridge was small when compared with that of Westminster, and still more with other bridges erected at a later period. The total cost was only £260,000, which was all defrayed by a toll imposed on passengers for several years. *Blackfriars* bridge is shorter and not so high as Westminster, but the differences are not so great as to account for the latter having cost above £100,000 more. The length of this bridge from wharf to wharf is 995 feet; and its width forty-two. It has nine elliptical arches, the centre one of which is 100 feet wide. Over each pier there is a square recess, supported by Ionic pillars and pilasters, which have a very light and ornamental effect on the appearance of the bridge, when viewed from the river. *Blackfriars*, unlike Westminster Bridge, rests on piles driven under water, and cut off level with the bed of the foundations, by a machinery of Mr. Mylne the architect's invention.

The erection of this bridge was attended with corresponding improvements of great importance to the adjacent parts of the metropolis. What is now called Bridge Street, one of the most spacious and elegant in the metropolis, was of old the channel of one of its greatest nuisances, and thither, as to the veriest sink in town, has Pope made the genius of Dulness dismiss her children:—

— By Bridewell all descend,
 (As morning prayer and flagellation end),
 To where Fleet ditch, with disemboing streams,
 Rolls the large tribute of dead dogs to Thames;
 The king of Dykes! than whom no sluice of mud
 With deeper sable blots the silver flood.

In 1734 and 1737 this ditch had been arched over as far as the obelisk at the commencement of the present Bridge Street; and the arching being now continued onward to the bridge, every visible trace of the 'sluice of mud' was removed. Altogether, this forms by far the finest entrance into the metropolis. When a stranger ascends the bridge, the views of the city which burst upon him on either hand are singularly grand and picturesque. Before him, on the right, he beholds the mighty dome of St. Paul's, and beyond it spires and turrets thickening into a very forest towards the east; on the right, the lofty terraces of Somerset House and the Adelphi, Westminster Abbey's venerable towers, and Waterloo, the first of bridges. As the opening of this bridge entirely ruined a Sunday ferry, established at this place for the benefit of the poor of the fraternity of watermen, the bridge committee very handsomely agreed to transfer £13,650 consolidated 3 per cents. to the rulers of the company by way of recompense for the loss: the interest of which is now appropriated to the same uses as the profits which were derived from the ferry.

To defray the expense of lighting, watching, cleansing, and repairing this bridge, there is a particular fund set apart, consisting of a small balance of consolidated 3 per cent. annuities, left after payment of the expense of erecting the bridge, the rent of some premises, and £15,000 raised by bonds in the credit of the Orphan's Fund, by virtue of an act of the 52 Geo. III., and assigned to the chamberlain for this special purpose. The revenue of this fund in the year 1821-2 was £882 12s. 10½d.; the expenditure only £522 16s. 6d.

It has been well observed, of *Waterloo Bridge*, that it is 'a work not less pre-eminent among the bridges of all ages and countries, than the event which it will commemorate is unrivalled in the annals of ancient or modern history.' The celebrated Canova, when on a visit to this country, declared that it was worth a journey from the remotest corner of the earth to behold it. M. Dupin, another intelligent foreigner, describes it as a monument worthy of the Sesostrises and the Cæsars. The original projector of this bridge was Mr. George Dodd; but quarrelling with the company, who subscribed the capital to carry the plan into effect, he was put aside as soon as real business commenced, and the execution of the work confided to Mr. Rennie. It was at first proposed that it should be of wood, and that with the profits arising from a toll on this bridge, which were expected to be immense, one of stone should be afterwards erected; but, after struggling for three sessions to carry a bill to this effect through parliament, the company found the opposition to it so strong, that they abandoned the project, and, having agreed to undertake the building of one of stone, obtained the necessary powers. For this purpose they

increased their capital from £100,000 to £500,000; and so sanguine were they of being still amply remunerated by the tolls, that the additional capital was all raised among themselves, and shares were at a guinea premium next day. The expense of the building, however, so much exceeded the estimate, that the company was under the necessity of raising about £500,000 more, by means of annuities on the tolls; and any chance of a dividend on the original shares has been thus postponed to so remote a period, that they have sunk in the market to a merely nominal price.

Waterloo, or *Strand Bridge*, as it was first called, consists of nine elliptical arches, each of 120 feet span, and thirty-five feet elevation. It is of the same width exactly as Blackfriars, and longer within the abutments than Westminster bridge by nineteen feet. The roadway is perfectly level, and in this respect the bridge has a decided advantage over every other on the river. The arches and piers are built of large blocks of granite, with short counter-arches over each pier. The adjustment of the equilibrium throughout the whole structure is said to be singularly perfect, the curve of equilibrium passing every where extremely near to the middle of the blocks. In building the arches, the stones were rammed together with great force, so that, on the removal of the centres, none of the arches sunk more than an inch and a half. In short, 'the accuracy of the whole execution seems to have vied with the beauty of the design, and with the skill of the arrangement, to render the bridge of *Waterloo* a monument, of which the metropolis of the British empire will have abundant reason to be proud for a long series of successive ages.'

The rapidity with which this great work was erected is not the least remarkable feature in its history. The foundation stone was laid on old Michaelmas-day in 1811, and on the 18th of June, 1816, the first anniversary of the battle of *Waterloo*, the glorious memory of which it is designed to commemorate, it was opened with great pomp by the prince regent in person, accompanied by his royal brother, the duke of York, the duke of Wellington, and a long train of persons of the first distinction.

Vauxhall Bridge, near *Vauxhall Gardens*, and hence called *Vauxhall Bridge*, was the first iron bridge over the *Thames*, and the project of Mr. Ralph Dodd, the father of the projector of *Waterloo Bridge*; but, alike in their fates, he also was deprived of the satisfaction of executing his design. On his dismissal, in consequence of some disagreement with the committee of persons who subscribed for its erection, the aid of Mr. Rennie was called in, and an act of parliament procured for the construction of a bridge according to a design which he proposed, and which was universally approved of at the time. Before operations commenced, however, a new plan was brought under the notice of the committee by Sir Samuel Bentham; and, after much discussion, and, it is said, not a little intrigue, it was resolved to adopt it in preference to the other. Mr. Rennie on this withdrew from any further concern in the undertaking, and the work was begun under the direction of Sir Samuel Ben-

tham. In a short time, however, the successful knight was dismissed in his turn, and it was left to Mr. J. Walker, an engineer of eminence, to complete the structure. The first stone was laid in 1813 by prince Charles, now duke of Brunswick. It is said to have cost £300,000. See **IRON BRIDGES.**

Southwark Bridge.—The great extension of buildings in the borough of Southwark, St. George's Fields, and other parts on the south of the river bearing immediately on London Bridge and Blackfriars, and consequent increase in the thoroughfare over these bridges, suggested the expediency of erecting an intermediate one from the bottom of Queen Street, Cheapside. The projectors of the undertaking were at the pains to obtain an accurate account of the persons, vehicles, and horses, that passed over these two bridges in the course of a day, and the following were the returns; the first taken on the 16th of October, and the second on the 22d of October, 1810.

LONDON BRIDGE.

Persons	56,180
Coaches and Chaises	871
Gigs and Taxed Carts	520
Waggons	587
Carts and Drays	2,576
Horses	472

BLACKFRIARS BRIDGE.

Persons	37,280
Coaches and Chaises	626
Gigs and Taxed Carts	526
Waggons	389
Carts and Drays	1,269
Horses	433

Calculating that one-sixth of these passengers would prefer the new bridge, the projectors saw in the toll that might fairly be imposed an ample return for the capital required for its erection. A toll of 1d. from that proportion of foot-passengers alone would produce upwards of £60,000, which would be more than sufficient to pay fifteen per cent. on a capital of £400,000, for which sum Mr. Rennie estimated that a bridge of cast-iron with stone piers might be executed, which, though of less costly materials, would rival in magnificence and splendor that of Waterloo itself.

An act of parliament was accordingly obtained, in 1811, for the erection of the proposed bridge; but a provision was inserted, that operations should not be commenced until £300,000 of the £400,000 admitted to be required were subscribed. The unexpected calls which had been made on the Waterloo Bridge Company had however so far damped the ardor for such speculations, that three years elapsed before the requisite sum was made up, and the work actually begun.

The Southwark Bridge consists of three immense arches of cast iron; the span of the centre one is 240 feet, and of the two side ones 210. The abutment is of fine masonry connected by dowels to prevent its sliding; and rests on gratings of timber supported by oblique piles. The piers stand on foundations nine or ten feet below the present bed of the river, and are abundantly

secured by a flooring of timber placed on piles. 'When we consider,' says M. Dupin, 'the extent and elevation of the arches of the bridge, and the magnitude of the elements that compose it, what an idea does it not give to us of the power of man! We exclaim involuntarily, while we gaze on the chef d'œuvre, 'Behold the Bridge of Giants!'

The subscribers are allowed by their act of incorporation to receive ten per cent. annually on their shares; and the remainder of the receipts is to be laid by and to accumulate until it shall become sufficient to pay each proprietor double the sum he subscribed, after which the bridge is to be made free to the public.

The Tower.—Antiquaries are very eager to give the tower of London a Roman origin; and from the circumstance of an ingot of silver having been discovered, in digging the foundations for a new ordnance-office, have inferred, that it was not only the capital fortress of the Romans, but their treasury and their mint. One historian, more minute than the rest, even considers this identical ingot as a portion of the last treasure sent into Britain for the payment of the Roman forces! That the Romans might have fortified the banks of the Thames, on this spot, is by no means improbable; but there is not the slightest evidence that they ever did so; nor is there any proof of a building having been erected here, until the time of William the Conqueror, who built the White Tower. In an age when ecclesiastics were the principal architects, and bishops exchanged their crozier for a baton, and marched at the head of armies, it was not surprising that those who possessed the talents should employ them in military architecture. Hence the tower was actually built by Gundulph, bishop of Rochester; but so obscure is every thing connected with the early history of this fortress, that even the date of its erection is unknown, though it must have been begun about the year 1080.

Whether any thing more than the White Tower was built in the reign of William seems doubtful; but his successors, William Rufus and Henry I., are known to have made considerable additions to the original structure, and the former surrounded the tower with a wall in the year 1096.

Though the first object of the tower might be as a fortress, yet its history is much more interesting as a palace and as a state prison. As a fortress, it has never had to defend itself against a foreign enemy, though in the domestic troubles, which at an early period of our history agitated the metropolis, the tower was always considered of importance, and its garrison sometimes called into action; and Mandeville, in whose family the custody of the tower was at first made hereditary, defended it successively against the Londoners in the time of Stephen, and even made a sortie from it as far as Fulham, carrying off the bishop of London from his palace.

Longchamps, bishop of Ely, who was made keeper of the tower during the absence of Richard I. in the Holy Land, found it a place of refuge when his tyranny had roused the no-

bles to resistance. He increased its fortifications, and surrounded them with a deep ditch; and, had he not been as cowardly as he was tyrannical, might have maintained a long resistance; he however surrendered the fortress, and sought personal safety in flight, disguised as a female. Prince John, who had assisted the barons in overthrowing the despotism of Longchamps, assuming the tyrant himself, had no sooner gained the throne than he had to defend the tower against them. At the commencement of hostilities, the barons, to whom the citizens had given the charge of the capital, laid siege to the tower, which, though feebly garrisoned, defended itself until the promise of a charter of liberties was wrested from the reluctant monarch. The archbishop of Canterbury was appointed to hold the tower, in trust, until the king fulfilled his promise, and signed Magna Charta. In his subsequent attempts to violate the compact he had signed, he was not able to gain possession of this fortress, which was kept by the archbishop until the arrival of prince Louis of France, who had been invited to the English throne, and to whom the tower was given up. While John lived, and England was torn by intestine wars, the French prince entertained hopes of the crown; but, on the death of that weak and perfidious monarch, loyalty to the native princes returned, and Louis was compelled to give up the tower to Henry III. who augmented its fortifications with an additional line, and built the great hall, the royal chapel, a state chamber, &c. This monarch was anxious to make it suitable as a royal residence, by the splendor and convenience of its apartments; he was equally careful to render it secure, as a place of retreat from the growing turbulence of the barons. Some works of considerable magnitude had been raised, and were barely completed, when, on St. George's day, in the year 1240, the foundations gave way, and the walls and bulwarks, with a grand portal, fell down; they were immediately rebuilt; when, if we are to believe Matthew Paris, on the following year, and on the same day and hour, the whole again fell down.

All design of enlarging or strengthening the tower was now suspended for some time; and indeed the king was unable to keep possession of it; for in 1258 the parliament of Oxford wrested the sceptre from his feeble hands, and established a government of twenty-four barons, and seized upon the tower. The measure was, however, too violent, and the king resumed his authority; but the tower was now rather a fortress, where he could defend himself, than a palace; and he at length yielded to the commands of the refractory barons, by subscribing conditions more humiliating than even the parliament of Oxford had demanded. He yielded up all the castles and fortresses, and consented that all foreigners who were obnoxious to the twenty-four barons, who were thus reinstated in power, should be banished. The queen, who possessed more spirit than her husband, indignant at a treaty which banished aliens, quitted the tower before the barons entered, and endeavoured to reach Windsor, where her son, prince Edward,

had a strong garrison of foreign troops. She left the tower in a barge; but had scarcely reached London Bridge, when a mob collected, and not only assailed her with the most indecent language, and cries of 'drown the witch,' but they actually pelted her with every thing they could lay hold of, which compelled her to return to the tower.

On the restoration of Henry to his authority, Otho, the pope's legate, fixed his residence in the tower, and had soon to sustain a very vigorous attack made by the earl of Gloucester, whose new insurrection again endangered the king's crown. Otho, assisted by the Jews, who had taken refuge in the tower, maintained the fortress until relieved by the king, who had marched from Cambridge, and, being joined by his son from the north, invested the city with 60,000 men. He threw succours into the tower, and carried off the legate; but it was not until a large fleet of Gascoigns sailed up the Thames, and lay before the tower, that the rebels sued for peace, which was granted.

Edward I. completed the fortifications commenced by his father, erected some additional outworks to the west, and enlarged the moat considerably. His son and successor, Edward II., fearing attacks from the barons, who had become provoked by his favoring the oppressions of Piers Gaveston and the De Spencers, endeavoured to make the tower impregnable by additional fortifications, and by reinforcing the garrison. He did not, however, venture to defend it against the conspiracy of Mortimer and queen Isabella; but on their approach to the capital, having failed in rousing the Londoners to resistance, he left the tower in charge of the bishop of Exeter. The citizens only waited for the king's departure, to display that rebellious spirit which was too manifest; they took the tower by surprise, seized the amiable prelate, and several other persons attached to the king, and cut off their heads. The king was soon afterwards made prisoner, and the two De Spencers hung. The queen entered the city in triumph, accompanied by prince Edward, and a parliament was called, which transferred the crown from Edward II. to his son.

During the victorious reign of Edward III. the tower is only interesting on account of its illustrious prisoners, the kings of France and Scotland, who for some time were its inmates.

When the fatal insurrection of Gloucester threatened the power of Richard II., and the tower was blockaded, he invited the leaders to a conference within its walls. They refused, fearing they might be surprised; until the weak monarch, in order to remove all suspicions, sent them the keys of the gates and the strong turrets, and offered to admit 200 armed men. The proposal was too favorable to be refused, and the rebels agreed to the conference. The king received them in a splendid pavilion, and agreed to go to Westminster, where he was compelled to submit to the execution of many of his most faithful followers: he soon saw the result of his weakness, and although he returned to the fortress it was only as a prisoner, to abdicate the throne to his rival.

Jack Cade, whose insurrection has already been noticed, on entering London, attempted to besiege the tower; but it was, at that time, defended by a strong garrison, and commanded by a brave governor, lord Scales, who was very active in putting down the insurrection.

During the wars between the houses of York and Lancaster the tower was vigorously besieged by the Yorkists. Sir John Wenlock carried on the siege on the eastern side of the fortress; artillery was planted to the south, on the opposite side of the river; and lord Cobham, with some city aldermen, conducted the siege on the west. Lord Scales, unable to defend the place against such a force, left the tower by water, but he was seized and killed, and his naked body thrown on the bank of the river.

From this time the tower ceases to be interesting as a fortress; for, during the civil wars, it was successively occupied by the different parties, without a sword being drawn or a shot being fired; and, when James II. quitted the capital, it was secured immediately for the prince of Orange. In times of alarm, measures have been taken for strengthening the city fortress, as was the case so late as 1792, when the garrison was increased; 'several hundred men,' says Bayley, in his History of the Tower, 'were employed in repairing the fortifications, opening embrasures, and mounting cannon; and, on the western side of the fortress, a strong barrier was formed with old casks, filled with earth and rubble: the gates were closed at an early hour, and no one but the military allowed to go upon the ramparts.' But from the time that the tower was first erected, until the reign of queen Elizabeth, it was frequently used as a palace where our monarchs 'kept open household and frank resort,' and where the royal court, and even parliaments, were held. From the tower all processions and pageants generally proceeded, whether it was to a tournament or a coronation: and the kings of England, from the reign of Richard II. to the accession of James II., always proceeded from the tower to Westminster to be crowned, in grand procession, with the exception of Charles I. who was prevented by the plague.

Gorgeous as the procession of queen Elizabeth appears to have been, it was surpassed at the coronation of Charles II.; at least so Heath would have us believe, for he assures us, in his Chronicle, that 'all the world that saw it, could not but confess, that what they had seen before, was but solemn mummery to the most august, noble, and true glories of this great day: even the vaunting French confessed their pomps of the late marriage with the infanta of Spain, at their majesty's entrance into Paris, to be inferior in state, gallantry, and riches, to this most glorious cavalcade from the tower.'

The fortifications of the tower occupy a space of about twelve acres, and consist of a citadel, or keep, encompassed by an inner and outer ward, and surrounded by a moat supplied with water from the Thames. There are four entrances: the principal one is over a stone bridge at the south-west angle of the enclosure, where there was formerly a large draw-bridge.

In addition to the two draw-bridges on the south side, which separate the fortress from the quay, or terrace, on the banks of the Thames, there is also a private entrance by water, under a strong tower, which is called the Traitor's Gate, on account of its being the way by which state prisoners were brought to the tower. The barbican, which formerly stood beyond the ditch on the west, no longer exists. The entrance to the principal bridge is protected by a strong tower flanked with bastions; and the fortress is so constructed as to afford many precautions against sudden surprise, or a full capture of the place, even if the outer works should be occupied. The principal royal apartments were in the inner ward, which was formerly enclosed by a lofty wall of stone, about forty feet high, and from nine to twelve feet thick. It was also embattled and strengthened with thirteen small towers, most of which, as well as a considerable part of the wall, still remain.

The White Tower, though the largest, the most ancient, and the most complete, is by no means the most interesting part of this fortress. It is a massive edifice of a quadrangular form, 116 feet long, ninety-six broad, and ninety-two feet high; it is embattled, and has a turret at each angle; one of these turrets was used by Flamstead as an observatory, previous to the establishment of the royal observatory at Greenwich. On the first floor of the White Tower are two large rooms, one of which is at present used as a repository for cavalry arms, and the other as a tool house. There are also a vaulted room and a cell evidently intended for prisons: and tradition relates, that in one of these cells Sir Walter Raleigh wrote his History of the World. Here, too, were confined several of the persons connected with Sir Thomas Wyatt's rebellion in 1553-4, two of whom have left the following inscription on the sides of the doorway leading to the cell. 'HE THAT INDVRETH TO THE ENDE SHALL BE SAVED. M. 10. R. RYDSTON DAR. KENT. ANO. 1553.'—'BE FAITHFVL VNTO THE DETH AND I WILL GIVE THE A CROWNE OF LIFE. T. FANE, 1554,' and underneath the inscription is 'T. Cylpepper of Darford.'

On the second floor are two rooms used as armories, and an apartment commonly called Cæsar's chapel, which Mr. Bayley, to whose History of the Tower we acknowledge ourselves indebted, says, 'may justly be said to exhibit one of the finest and most perfect specimens of the Norman style of architecture now extant in this country.' When the sovereign held his court in the tower, this chapel was used for the private devotions of the royal family and household. A chaplain regularly performed service here, whose salary, in the reign of Henry III., who greatly ornamented the chapel, was fifty shillings a year. The chapel, which was dedicated to St. John the Evangelist, has long ceased to be a sacred room, and is now appropriated as one of the rooms of the record office. The uppermost story of the White Tower exhibits a massive timber roof of great antiquity. The principal room on this floor is traditionally reported to have been the council chamber; and

here the duke of Gloucester, afterwards Richard III., is said to have ordered the execution of lord Hastings, and the arrest of the archbishop of York, the bishop of Ely, and lord Stanley.

In addition to the chapel already noticed, there is another in the fortress which was erected in the reign of Edward I., and was dedicated to St. Peter ad Vincula. It is a plain building quite destitute of ornament, and derives its sole interest from its being the cemetery where so many noble and distinguished personages at last found repose, after falling the victims of the tyranny or jealousy of Henry VIII., whose soul must have been appalled at the recollection of the chapel of St. Peter, could the consciousness of guilt appal it.

Here rest the remains of the lovely Anne Boleyn, whose absence the monarch once declared, 'gave greater pains to his heart, than angel or scripture could express;' and yet he sent her, and her innocent brother, (George Boleyn, lord Rochford (who is also buried here), to the block. If the spirits of the dead could be disturbed by the vicinage of crime, those of the queen and her brother might be so, for here the wife of the latter, the wretched agent of the king in their death, is buried. She was an accomplice in the crimes of queen Catharine Howard, another of Henry's wives, and with her was executed and buried. The pious prelate, John Fisher, bishop of Rochester, who was reduced to the melancholy situation of begging food, a shirt, and other clothes, and who, when found to survive this treatment, was beheaded, sleeps in the same tomb as his patron, Thomas Cromwell, earl of Essex, so long the favorite of the king; and with them rests, in eternal peace, the virtuous Sir Thomas More, lord chancellor. All these were sacrificed to the tyranny, jealousy, or caprice of Henry VIII. The last of the Plantagenets, Margaret, countess of Salisbury; Edward Seymour, duke of Somerset, lord protector, who was executed in 1552; and his brother, the haughty Thomas Seymour, baron Sudley, whom he had three years before sent to the block, sleep in peaceful amity, with the ambitious John Dudley, duke of Northumberland, the enemy of their house, who raised himself on the ruin of Somerset, and, like him, fell a victim to his ambition.

Here also reposes the victim of paternal and fraternal affection, Gerald Fitzgerald, ninth earl of Kildare, lord deputy of Ireland, who died of a broken heart, a short time before his son, and five of his brothers, who were executed for participating in the treason with which he was charged.

Here also are entombed two of the victims of queen Elizabeth's jealousy, Thomas Howard, duke of Norfolk, executed for aspiring to a union with Mary queen of Scots, and the once favorite Essex. The ill-fated James, duke of Monmouth, is also buried here, as are the three Scottish peers who joined in the rebellion of 1745; the lords Kilmarnock, Balmerino, and Lovat, who are all buried in the same grave. The leaden plates which had been fixed on their coffins are still preserved in the chapels, and bear similar inscriptions, with the alteration

of the name and age of the parties. That on lord Lovat is

Simon Dominus
Frazer de Lovat
Decollat. Apr. 9, 1747
Ætat. suæ, 80.

Several officers of the Tower are also interred in this chapel, and, among others, that faithful guardian of the regalia Talbot Edwards, who defeated colonel Blood's attempt to steal the crown. The advowson of this chapelry is in the crown, and the annual stipend £115 5s.

In the lieutenant's house, a large and inconvenient old building, usually occupied by the major, or resident governor, there is a monument recording the gunpowder plot conspiracy.

The Bell Tower is of a circular form, with a curious vaulted roof. It was in this tower that Fisher, bishop of Rochester, was confined; and tradition, without any good ground, also marks it as the place of queen Elizabeth's confinement. It is now used as one of the domestic offices of the governor.

Connected with the Bell Tower, by a paved foot-way, is the Beauchamp, or Cobham Tower, which has always been one of the principal state prisons. It takes its double name from Thomas de Beauchamp, earl of Warwick, a prisoner here in 1397, and from the Cobhams, who were also its inmates for Wyatt's conspiracy. The Beauchamp Tower consists of two stories, whose walls bear numerous records of the misery of those who were confined within them, and, destitute of books or paper, beguiled the time in inscribing memorials of their sufferings on their walls.

Among the distinguished prisoners in this tower was Philip, earl of Arundel, son of the duke of Norfolk, whose execution has already been noticed. The earl, who had been arrested on frivolous charges, and condemned on very questionable evidence, was reprieved by Elizabeth, and, after lingering ten years in confinement, died on the 19th of October, 1595, in the fortieth year of his age. His principal crime was that of being a staunch papist; and it is said that the descendants of the family consider him so much a martyr to the Roman Catholic religion, that a late duchess procured the skull, and had it enchased in gold, as a valuable relic. This earl has left several inscriptions on the walls of this tower, expressive of his innocence.

John Dudley, earl of Warwick, who died in this tower in 1553, has left a piece of well executed sculpture near the fire-place, representing the bear and ragged staff (the family arms), surrounded with a border of oak sprigs, roses, and other flowers.

Another prisoner, Charles Bailly, an adherent of Mary queen of Scots, who once suffered the tortures of the rack without making any disclosure of importance, has left some moral reflections neatly inscribed on the walls of his prison. Here Dr. Story, who was executed at Tyburn in 1571, has also inscribed his name on the walls. A singular circumstance attended his execution: he was cut down before his senses had left him; and is reported to have

struggled with the executioner, while the latter was carrying into effect that revolting part of the punishment of traitors (now repealed) tearing out his bowels. One of the charges against Dr. Story was, for consulting with a noted magician against the queen's life, and for having cursed her daily in his grace at meals!

Pious ejaculations, moral reflections, worldly advice, and records of personal suffering, form the subjects of nearly all the inscriptions; and only one individual has left a memorial of his attachment to the sex; it is that of a prisoner whose name is only known from the circumstance, and of whose crime there is no record. A bleeding heart, with the initials, T. W. and P. A., are subscribed with the following words: 'Thomas Wyllingar goldsmith—My hart is yours till dethe.'

The Beauchamp Tower is traditionally said to have been the prison of Anne Boleyn and Lady Jane Grey; but, though there is no evidence to support it, it is by no means improbable, as it was long more used as a prison than any of the towers. Some of the state prisoners of 1794 were confined here.

The Jewel Tower, where the regalia are now kept, was formerly known by the name of the Martin Tower.

The Broad Arrow Tower is of smaller dimensions than the Beauchamp Tower, but, like it, has been much used as a prison, and its walls contain numerous inscriptions, few of which are of interest; indeed, our prison albums are much less interesting than those discovered in the Bastille, on its demolition in 1789.

The Salt Tower contains a very singular and hieroglyphical device by one 'Hew Draper, a tavern keeper at Bristol,' who was committed here on the 21st of March, 1560, on the accusation of 'one John Man, an astronomer, as a suspect of a conjurer or sorcerer, and thereby to practice matter against Sir William Lowe and my ladie;' a lamentable instance of the facility, with which life and liberty could, in those days, be sacrificed.

The Lanthorn Tower was of considerable antiquity, and formerly contained the king's bed chamber. It communicated with the great hall, the scene of many a royal banquet in the reigns of our Henries and our Edwards. The Lanthorn Tower was considerably damaged by fire in 1788, and soon after its remains were taken down. The site of this tower, and of several other parts of the ancient palace, are now occupied by the buildings of the Ordnance office.

The Bloody Tower is thought to have derived its appellation from the circumstances of the two princes, Edward V., and his brother, Richard, duke of York, who are supposed to have been put to death here, by order of their uncle, the duke of Gloucester. Mr. Bayley, who doubts whether the royal brothers were murdered in the tower, and ridicules the idea of calling it bloody when the children were smothered, infers, that if they were put to death in this fortress at all, it must have been at a different part of it; as the bones discovered in the time of Charles II., which, on account of their appearing to be those of children, had afterwards royal interment in

Henry VII.'s chapel, were found on the south side of the White Tower, which is at a considerable distance from the place where the deed is supposed to have been perpetrated. In addition to the towers thus described, there were several others, of some of which nothing but the foundation remains; nor is the history of them interesting even in their ancient state.

The history of the tower of London forms a black page in the early annals of this country, as, on account of the security it presented, the most illustrious prisoners have always been confined within its walls.

A lamentable catastrophe attended one of the first prisoners of royal blood that tenanted it. This was Gryffydd, the eldest son of Llewelyn, prince of Wales, who attempted to make his escape from this prison in 1244. He had formed a rope of the hangings, sheets, and table cloths, with which he let himself down from the top of the Tower; but, being a very corpulent man, the rope broke, and he was dashed to pieces. In the reign of Edward III., two sovereigns, taken prisoners in two distant wars, were confined in the tower—John, king of France, and David, king of Scotland; both were treated with the highest respect, and even with delicate attention, by Edward, and his gallant son, the Black Prince.

It was in the tower that lady Arabella Stuart died the victim of grief. This amiable princess was an object of unjust suspicion with both Elizabeth and James, though guilty of no other crime than that of marrying a man she loved, William Seymour, grandson of the earl of Hertford. For this offence, she was committed to the tower, while her husband was also committed to prison. Both the prisoners contrived to escape, and intended to pass over to France, but were seized and brought back to prison. The lady Arabella was more strictly watched than ever; and it appears by her autograph letters, of which there are several in the possession of lord Weymouth, as well as in the British Museum, that she was even deprived of necessary comforts. In a letter to viscount Fenton, she entreats his lordship to make known to the king her 'most discomfortable and distressed state;' and in another part of the letter, which she had afterwards cancelled, she complains that she cannot get any thing but ordinary diet, and that unfit for a person suffering under sickness, as she was. It was in vain that she presented memorials to the king, and sought the good offices of the queen, and such of the nobility as she thought had influence with his majesty—for the relentless James left her to perish in the tower. In the Harleian MSS., vol. 7003, there is a fragment of one of her letters to the king, which forcibly exhibits her humility, and the unfeeling character of James.

During the civil wars of Charles I., the protectorate, and after the restoration of Charles II., the tower was not wanting in inmates.

In a collection of pamphlets, which were presented by his late majesty to the British Museum, there is a folio sheet, printed in September, 1647, which gives us a list of the prisoners in the tower at that time. It is entitled 'A Loyall Song

of the Royall Feast, Kept by the Prisoners in the Towre, in August last, with the names, titles, and character of every prisoner. By Sir F. W., Knight and Baronet, prisoner.'

The song, which contains twenty-five stanzas, is curious, as showing the staunch loyalty of the prisoners, and the humor of one of them at least, even in his confinement. It thus commences :—

'God save the best of kings, King Charles,
The best of queens, Queen Mary,
The ladies all, Gloster and Yorke,
Prince Charles so like old Harry:

God send the king his own again,
His Towre and all his coyners,
And bless all kings who are to reigne
From traytors and purloyners.

The king sent us poor traytors here
(But you may guesse the reason,)
Two brace of bucks to mend the cheere;
Is't not to eat them treason !'

The writer of the song, which is an imitation of the ballad of Chevy Chase, enumerates the names of the prisoners, all of whom he eulogizes for their good conduct.

The tower still continues to be used as a state prison ; here the last victims of attachment to the exiled house of Stuart perished ; and here, in 1794, Mr. Horne Tooke, Hardy, and the other persons charged with high treason, were confined : one of them, John Augustus Bonney, has inscribed, on the walls of his prison, an epitaph on a cat, which, with true republican feeling, he called *citizen*, and the following epitaph on a goldfinch.

Where Raleigh pined, within a prison's gloom,
I cheerful sung, nor murmured at my doom ;
Where heroes bold, and patriots firm could dwell,
A goldfinch in content his note might swell ;
But death, more gentle than the laws decree,
Hath paid my ransom from captivity.

Buried, June 23, 1794, by a fellow-prisoner, in the Tower of London.

The last time that the tower of London was used as a state prison, and may it long continue the last, was in the year 1820, when Thistlewood, and his associates in the plot, known by the name of the Cato Street Conspiracy, for massacring the whole of the king's ministers, were confined here. During their trial they were brought every morning from the tower to the Old Bailey, and conveyed back again in the evening. When five of them had been found guilty, and sentenced to death, they were executed in front of Newgate, and not on Tower Hill, as was formerly the custom.

Within the walls of the tower are the Mint, the Jewel Office, the Armoury, the Ordnance Office, the Record Office, and the Menagerie.

The Ordnance Office, of which his grace the duke of Wellington is at present master, superintends the supplying of arms, ammunition, and other warlike stores required in the service. When the principal arms consisted in the bow, the officers of this establishment were called the bowyer, the cross-bowyer, the armourer, &c. In time of war, the number of officers, clerks, and

wardens, in the Ordnance Office, exceeds 300 exclusive of porters, servants, and other attendants.

The Record Office contains the parliamentary rolls, from the reign of king John to that of Richard III. : a survey of the manors of England and a register of the ancient tenures of all the lands ; ancient perambulation of forests ; a collection of charters granted to colleges and corporations ; the book of prayer under the great seal, printed and sanctioned by Charles II., on his restoration, together with several state papers, and documents of great antiquity.

The public records of Scotland, which Oliver Cromwell seized on, were placed in the tower, where they remained until the restoration, when Charles II., intending to return them to Edinburgh Castle, sent them in a vessel, which was wrecked near Holy Island, and the valuable documents were lost.

The Royal Menagerie in the tower, where our monarchs formerly amused themselves with seeing the combats of wild beasts, is not remarkable either for the number or the rarity of the animals it contains ; and, as a collection of natural history, is unworthy of a great nation, whose fleets and armies would enable them to collect all that is wonderful in nature or art from every clime.

The government of the tower is vested in a constable, a lieutenant, and other subordinate officers. The opening and shutting of the gates, in the morning and evening, is done with great ceremony, and is almost the only circumstance that reminds the inhabitants of London that they have a fortress within their walls regulated by a military government. The warders, who attend at the tower, and wear the livery of the yeomen of the guard, were appointed to their office by Henry VIII. The king, after residing in the tower some months on the death of his father, left fifteen of his body guard, and gave them the name of warders ; and afterwards, in consequence of their attention to the protector, duke of Somerset, when confined there, he procured them the honor of wearing the same livery as the yeomen of the guard.

The Jewel Office.—It is probable that, from the moment the tower became a royal residence, it was the place where the regalia were deposited, though the first evidence on record, of its being used as a jewel office, is an order made in the fourteenth year of Henry III., to the bishop of Carlisle, directing that the four coffers of the king's jewels should be 'laid up in the tower.' From this time the regalia appear to have been kept in the White Tower until about the middle of the seventeenth century, when they were removed to a stone room near the grand store house, which has since been known by the name of the Jewel Office.

The situation of keeper of the regalia was formerly considered an office of great honor and dignity, as well as trust. In the reign of Edward III. John Flete, the first keeper of the jewels, whose name has been preserved, had an allowance of twelve pence per day, which was, in succeeding reigns, gradually increased, so that, in the time of Henry VIII., it was £50 per

annum. The smallness of this salary might induce an opinion that the office was not of much importance, did we not find it held by persons of consideration, among whom was Thomas Cromwell, the favorite and victim of Henry VIII. This officer was formerly styled Master and Treasurer of the Jewel House; and, in addition to the care of the crown jewels in the tower, he had the purchasing and custody of the royal plate—the appointment of the king's goldsmiths and jewellers—the supplying of plate to ambassadors, &c. His emoluments amounted to £1300 a year in the reign of Charles II., although they had then undergone considerable reduction. It was during the time that Mr. Edwards held this office, that colonel Blood made the daring attempt to carry off the crown of England, in which he so nearly succeeded. See BLOOD.

The value of the regalia in the jewel-office in the tower is estimated at £2,000,000 sterling. The most prominent and the most costly article is the new imperial crown, first used on the coronation of his present majesty in 1821. This splendid crown, which is unrivalled in value and elegance, is enclosed in a glass globe, which is made to revolve by some ingenious machinery, invented by Mr. March, the resident officer of the board of works in the tower. By this means, the spectators see every part of it, while six powerful argand lamps are so disposed as to throw upon the jewels every hue their prisms can exhibit.

In the jewel office there are four other crowns, and seven sceptres. One of the sceptres, with a dove on it, was discovered in 1814 behind a part of the old wainscotting of the jewel-house, where it must have remained several years. It is thought to have been the sceptre made for queen Mary, who was not only the queen consort of William III., but also queen regnant conjointly with her husband. Here, also, are the golden orb, which the King holds in his right hand at his coronation; the swords of mercy and of justice; the large golden salt cellar, which forms a model of the white tower; a grand silver font, used at the baptism of the royal family, and the banqueting plate used at the coronation feast; the ampulla, or golden eagle, for the consecrated oil with which the king is anointed, and all the other regalia used at the splendid ceremonial of a coronation. See CORONATION.

The armoury.—Until the last age of chivalric splendor, the sixteenth century, we read of no armouries in Europe. Then Henry VIII., Francis I., Charles V., and Maximilian I., laid the foundations of four of the best in Europe: yet their collections were all modern; and Dr. Meyrick, in his valuable work on the origin of armour, has very satisfactorily proved, 'that although in private families a few suits of earlier date had been preserved in Italy, that of Maximilian, with its steel lamboys, and that of Henry VII., resembling it, are the oldest specimens in Germany and England.' Such a declaration is greatly at variance with all preceding descriptions of the armour in the tower, and most of the pretensions of such collections: hence the Ambras collection, now at Vienna, though containing armour of the same period as the suits in the

tower, has equally with it been asserted to possess specimens of great antiquity, exhibiting the suits pretended to have been worn by the German emperors from the time of Albert I., emperor of the Romans, down to the period when body armour was principally relinquished.

It appears from a survey made by order of Charles II. in October, 1660, that the principal armour now in the tower was then at Greenwich, whence it has subsequently been removed. During the civil distractions of the preceding reign, the armoury in the green gallery, at Greenwich, was despoiled by the soldiers, and what remained was afterwards transferred to the tower. In this survey, which is signed by Sir John Robinson, lieutenant of the tower, and other officers, appointed to make the investigation, there is not the slightest mention of the Spanish armoury, or the thumb-screws, racks, and wire-whips, which now form so attractive a feature in this exhibition; and yet the surveyors give a very minute list of every thing found in the armouries of the tower and Greenwich. The Spanish armoury must, therefore, have been made up subsequent to the reign of Charles II., and its genuineness consequently becomes more than doubtful. In Burghley's State Papers, a lottery of foreign armour, probably that of the Armada, is said to have been drawn in the twenty-ninth year of Elizabeth, and if the instruments of torture, and the Catholic banner, now exhibited, are really spoils of the Armada, they must have been collected at least a century after they were dispersed by the lottery. There is, however, so little reason to believe, that any portion of the armour, called Spanish, is really so, that little faith can be placed in the authenticity of the instruments of torture which the growing enmity to the Roman Catholics would readily ascribe to them. The targets with pistols in them, exhibited as Spanish, were in the tower in the reign of Edward VI., and therefore could not have belonged to the Armada; the pikes, shown as Spanish, were common to the English soldiery; as well as the Spaniards; and the glaives, bills, halberds, &c., which principally form this collection, were used in England in the reign of Henry VIII. But then there is queen Elizabeth, in the very armour, we are told, which she wore when she rode on a steed, richly caparisoned, to review her forces at Tilbury Fort. Unfortunately, however, for the correctness of this statement there is not the slightest evidence of her majesty having worn armour on this memorable occasion; and it farther appears, that the fluted breast-plate, and the *garde-de-reine*, in which her figure is now enshrined, belonged to her father, and that they could not have been worn in a sitting posture; and the armour for her arms is of the time of Charles I. Nor are the other parts of the equestrian exhibition of armour in the tower more correct: the armour attributed to William the Conqueror is of Edward VI.'s time, or of the early part of Elizabeth's reign; the suit worn by Edward I. in the tower is also of the reign of the sixth Edward, with the addition of a *marte de fer*, of the time of James I., placed in his hand. Edward III. wears a suit of white armour of Henry VIII.'s time, and Henry IV. is

encased in another suit of the time of Edward VI. The armour of Henry V., which we are assured *he wore at the battle of Agincourt*, is composed of various pieces, some of which were not made until two centuries after this memorable victory: the upper part of the armour is of the time of Charles I., while the legs, which, like those of old Jacob Tonson, are not fellows, are of the reign of Henry VII. Henry VI. and Edward IV. have also each borrowed a pair of legs from Henry VIII., and a suit of body armour from Charles I.: while Edward V. wears a rich and highly decorated suit, which appears to have been made for that promising youth, Henry, prince of Wales, son of James I. Henry VII., no doubt, wears his own armour, and it is one of the greatest curiosities in the tower, for the lamboys, or puckered petticoat, is so contrived, as to reach the saddle behind, and then fall on each side. Henry VIII. wears what may be fairly considered his own proper armour,—the legs perhaps excepted. Edward VI. wears a suit, which seems to have been made for prince Henry, son of James I., but, in compliment to the piety of the young king, a variety of scriptural subjects are engraved on it in different compartments. James I., who would not easily have been induced to trust himself in a suit of armour, is encased in one which belonged to the earl of Warwick, about the time of Elizabeth or Mary. King Charles I. wears a rich suit of gilt armour, which was presented to him by the city of London when prince of Wales. His son and successor, Charles II., wears a splendid suit, of the time of Edward VI.; as does William III., while George I. and George II. wear the armour of the time of Henry VIII.; the former having the addition of a Turkish bridle.

Thus, of the seventeen monarchs who appear in armour in the tower, only three wear that of the period in which they lived: and in the small armoury, the figures which represent king John, Henry III., Henry V., and Henry VI., are all in suits of cavaliers' armour, of the time of Charles I., with flaming swords which are of a still later date.

De Courcy, the ancestor of the earls of Kinsale, of whose strength and prowess so many anecdotes are related, wears the armour of a demi-lancer of the time of Edward VI., with a helmet of Henry VII.; John of Gaunt, 'time honoured Lancaster,' wears a gigantic suit of armour, seven feet high, of the time of Henry VIII.; Charles Brandon, duke of Suffolk, and the jester, Will. Somers, wear suits of the time of Charles I. or II.

But although the armour in the tower is thus inappropriately displayed, it is sufficiently rich and varied to admit of a correct arrangement of several perfect suits, and it is much to be wished, that such a classification of it were made.

The tower armoury is highly curious and interesting, not only for these relics of antiquity, but for the ingenious and tasteful manner in which 100,000 stand of modern arms are displayed. The royal train of artillery, capable of dealing destruction on all around, is also an object of wonder and awe; but the curious will probably be more gratified in viewing the state

swords of the Pretender, the shield of the earl of Mar, or the axes with which Anne Boleyn, and the earl of Essex, Elizabeth's favorite, were beheaded: but for the authority of which we will not vouch, since, with respect to Ann Boleyn, Stowe assures us, that her head was severed from her body at one blow with a sword.

Tower Hill.—At what period Tower Hill was first fixed upon as a place for public executions is by no means certain; but it does not appear to have been used as such until long after the fortress had become a state prison; for we find that, in the year 1196, William Fitz Osbert, who had been tried and condemned in the tower, for 'seditiously moving the common people to seek liberty,' was drawn by the heels to the elms at Smithfield, and there hanged. A similar instance occurred in the year 1330, when Roger Mortimer, earl of March, who had been imprisoned in the tower, 'condemned by his peers, and yet never brought before them,' was hanged on the common gallows at Smithfield.

One of the earliest executions on Tower Hill appears to have been that of the accomplished Sir Simon de Burley, the tutor of Richard II., who was sent to the block in the year 1388. From this time the quadrangle and green-yard within the Tower Hill were the places where state-prisoners generally suffered.

In 1495 Sir William Stanley, chamberlain to Henry VII., whom he had faithfully served, was here beheaded for no other crime than that of having said, that 'if he certainly knew Perkin Warbeck was the undoubted son and heir of king Edward IV. he would never fight or bear arms against him.'

Henry VIII. had not long been seated on the throne before the axe on Tower Hill was employed; nor did he suffer it to rust. Had he, however, been guilty of no worse act than that of sending Empson and Dudley to the scaffold, his name and memory had not been stained with guiltless blood. They were beheaded on the 18th of August, 1510, for arbitrary exactions and embezzlement of money; and several of their agents were set in the pillory here with labels on their heads relating their crime.

In the same reign were executed here the duke of Buckingham, sacrificed by cardinal Wolsey; Fisher, bishop of Rochester, for denying the king's supremacy; Sir Thomas More; lord Rochford, the brother of Ann Boleyn, who two days before had suffered within the tower, and four alleged accomplices of the queen's guilt. Several illustrious victims followed in the persons of the marquis of Exeter, the earl of Devonshire, lord Montacute, and Sir Edward Nevil.

Lord Leonard Grey, deputy of Ireland, was executed for having connived at the escape of his nephew, lord Dazey; Thomas lord Cromwell, Thomas Seymour lord high admiral, the protector duke of Somerset, the duke of Suffolk, father of lady Jane Grey, Sir Thomas Wyatt, and Thomas duke of Norfolk, successively perished beneath the axe on Tower Hill.

During the reign of James I. the only execution on Tower Hill was that of Sir Gervas Elwas, lieutenant of the tower, and one of the accomplices in the horrible murder of Sir Thomas

Overbury within its walls. Sir Walter Raleigh did not suffer near the prison, where he had been confined for nearly fourteen years, but was executed in Old Palace-yard. The infamous earl of Castlehaven here met a just punishment; and here perished the earl of Stafford, Sir Alexander Carew, Sir John Hobbam and his son, archbishop Laud, Mr. Love the minister, and captain Brown Bushel, who fell victims of the civil and religious feuds of the times.

Of the regicide judges, on whom Charles II. revenged his father's death, Sir Henry Vane was the only one executed on Tower Hill; but the accomplished earl of Strafford, and the patriotic Algernon Sidney, here paid their debt before nature had demanded it.

The ill-fated duke of Monmouth, when led to the scaffold on Tower Hill, was attended by a very strong guard, on account of his known popularity. The executioner seemed to feel dismayed at his office; for, after giving three blows with his axe, on the neck of the unfortunate duke, who bore them all without moving any thing but his eyes, as if reproaching him, he threw down the fatal weapon, nor did he resume it until the sheriff by threats urged him to go on, and twice again, was his strength exerted ere the head was severed from the body.

The next individual who suffered on Tower Hill was Sir John Fenwick, in 1696, who was detected in a plot to assassinate king William.

Although some of the old maps of London represent a gallows on Tower Hill, and more than one historian relates, that there was one erected there, yet there are considerable doubts of the fact; for we invariably find that even prisoners in the tower, when condemned to be hanged, were either taken to Smithfield or Tyburn; nor was there ever a permanent scaffold here.

The rebellion of 1715 gave a few of the faithful adherents of the house of Stuart to the block: although, considering the extent of the treason, and the daring character of the individuals who were principals in it, no subdued insurrection was ever followed with greater clemency. Two Scottish Peers, who, among several others, had been taken, suffered on Tower Hill, the earl of Derwentwater and lord Kenmure. The earl of Nithsdale, ordered for execution at the same time, escaped from the tower in female apparel, through the excellent management of his wife. Sir Robert Walpole, who has been accused as a corrupt minister, declared, that £60,000 was offered to him if he could save the life of the earl of Derwentwater, but that he refused it. The last executions were lord Balmerino and lord Lovat for the rebellion of 1745, and Charles Ratcliffe, brother to lord Derwentwater, who suffered by himself on Little Tower Hill.

The military defence of London.—As far back as the reign of Alfred, the citizens of London were so imbued with the national spirit, that they were known amongst their fellow countrymen by the name of 'the brave Londoners.' When the patriot king was opposing a great body of the East Anglian Danes, who had thrown off his authority, and landed in the west of England from the north; the English army left London,

accompanied by a body of citizens, attacked the Danes under Hastings who had fortified Bamsflete, overpowered the garrison, and carried off the wife and two sons of this celebrated chief.

In the reign of Ethelred the Londoners successfully resisted three attacks by the Danes; and thrice also was Canute repulsed when he laid siege to the city, nor did he ultimately gain possession of it, until, by a compromise with his rival, a division of territory was agreed upon. With equal spirit did the citizens refuse to admit William the Conqueror, when his arms had been victorious over Harold's army, until the clergy and the men of rank set the example of submission. It is true that Domesday Book, the oldest record of military service extant, does not mention the Londoners, but the reason of this is to be found in the peculiar nature of their civic privileges. The citizens did not, like other persons under the feudal system, hold their possessions by the tenure of military service; London was the 'king's own chamber,' where all were free, and all service was spontaneous. But, though not bound to furnish any particular quota of fighting men, the Londoners always mustered in great force, when an enemy was in the field; indeed it would seem from their numerous arrays, and the indiscriminate manner in which they turned out at every call to arms, that in early times every citizen was a soldier. We know that playing at bucklers, and practising feats of arms, was one of the most ancient and favorite amusements of the London apprentices. The Ludus Trojæ or Troy game, practised by the Roman youths, so called because it is said to have been derived from the Trojans, was also a favorite exercise with the citizens in the reign of Henry II. 'Every Sunday in Lent,' says Fitzstephen, 'immediately after dinner, it was customary for great crowds of young Londoners mounted on war horses, well trained, to perform the requisite turnings and evolutions, to ride into the fields in distinct bands, armed with shields and headless lances, where they exhibited the representation of battles, and went through a variety of warlike exercises.' He adds, that young noblemen from the king's court, and from the houses of the barons, often joined the citizens in the trial of their skill in arms. Numerous exploits are recorded, which attest the spirit and promptness with which the skill thus acquired was, in maturer life, exerted in the defence of the city and kingdom. During what are called the Barons' wars, in the reigns of Stephen, John, and Henry III., Fitzstephen says, that there went out of the city to a general muster no less than 20,000 horsemen and 60,000 foot; and though unquestionably there must have been included in these numbers many vassals of the noblemen, who had then castles and inns within the city, and of others who had sought the protection of its walls; yet it is clear, from the preponderance which the Londoners invariably gave to the party, whose cause they espoused at this period, that they must have constituted a very considerable portion of the force.

Often did the citizens contend in arms against the power that sought to oppress them in the

reign of Henry III., and on one occasion, Stowe relates, they 'fortified the city with iron chains, drawne overthwarte their streets, munited the cittie, and did marvellous things.'

The manufacture of armour must, at this period, have been very considerable; for when Louis the Dauphin contended for the crown of England against Henry III., in the year 1216, the city of London sent him 600 knights and 60,000 coats of mail.

In the time of Edward II., the queen having been refused admittance into Leeds Castle, Kent, the king called to him 'the commons of Essex and London,' by whose assistance it was speedily reduced; but, that this demand on the Londoners for military service might not be construed into an admission of their ordinary liability to such requisitions, the king, by his letters patent, declared 'that the circumstance should not be prejudicial to them, nor drawn into precedent for time to come.' Another event, which occurred shortly after, places the military independence of the citizens in a still stronger light. In 1326, when the queen had taken part with the barons, the king demanded from the citizens a supply of men and money. The answer they made was, that 'they would not go out of their city to fight, except they might, according to their liberties, return home again the same day before the sun-set.'

During the French wars, in the reign of Edward III., the quota of troops contributed by London was comparatively small. In 1346 they furnished only 100 men at arms, and 500 foot soldiers; and in 1355 twenty-five men at arms and 500 archers. Probably more were not required, for these wars were popular; and, on the triumphal entry of the Black Prince into London with the king of France, we are told that the citizens 'displayed with peculiar exultation, from their windows and balconies, the implements and ornaments of war. 'On the breaking out of Wat Tyler's rebellion, in the ensuing reign, we have a remarkable instance of the strength in which the citizens could instantly muster, on any emergency. After Wat Tyler had been struck dead by the hand of Sir William Walworth, and while the king was amusing the rebellious multitude, by affecting to fill their leader's place, Walworth rode into the city, calling out aloud for succour for the king, when immediately 1000 well armed men obeyed the summons; and, being led forth in good array, spread such terror among the rebels, that they fled in all directions.

It is a singular fact, that, very shortly after the Londoners had thus distinguished themselves, their courage should for the first time stand impeached. When, in 1385, Charles II. of France made preparations to invade England, Stowe alleges that the Londoners 'trembling like leverets, fearful as mice, seek starting holes to hide themselves in, even as if the citie were now to be taken, and they that in times past boasted they would blow all the Frenchmen out of England, hearing now a vaine rumor of the enemies' coming, they run to the walls, break down the houses adjoining, destroy and lay them flat, and do all things in great fear, not one

Frenchman yet having set foot on ship-board. 'What would they have done,' he adds, 'if the battel had been at hand, and the weapons over their heads?' Froissart is supposed to afford some countenance to Stowe's aspersion, by remarking, that, when the French expedition was abandoned, the citizens, 'with a joy unexpressible, began to regale themselves and friends in a most sumptuous manner.' But is the invasion of our houses and firesides, by a foreign enemy, so little to be cared for, that even brave men should not rejoice at its being relinquished?

During the contest between the rival houses of York and Lancaster, the military defence of the capital became an object of great importance, and appears to have been duly appreciated. When the leaders of each party met in London in 1458, attended by a great number of their followers, in order to attempt a reconciliation, Sir Godfrey Boleyn, the lord mayor, kept watch daily with a guard of 5000 citizens completely armed; while three aldermen, with another body of 2000, continued the watch during the night.

The conduct of the citizens in the subsequent affairs of Jack Cade and Falconbridge, as before related, was such as showed that they had lost nothing of their ancient spirit.

Henry VII., having been very partial to archery in his youth, gave it every encouragement when he ascended the throne, in preference to the cross bow, although he sometimes amused himself with it, as we find by the following memoranda, in an account of his expenditure preserved in the Remembrancer's Office. 'Lost to my lord Morging, at the buttes, 6s. 8d.' and 'paid to Sir Edward Brough, 13s. 4d., which the kynge lost at buttes with his cross bow.' From these entries it would appear that the king was not so skilful a bowman as his sons, particularly the eldest, prince Arthur, who frequently exercised with the society of London bowmen at Mile End, and was so expert, that the captain, and every expert shooter, was called by his name.

The military art, and especially the practice of archery, continued to be cultivated as much as ever. At a general muster of 'the most able men between the ages of sixteen and sixty,' which took place twice by order of Henry VIII. in 1532; and again on the 8th of May, 1539, when there appeared no less than 15,000, 'all in bright harness:—' Most of the citizens of any quality or office,' Strype says, 'were clad in white satin or white silk coats, with chains of gold, and some had rich jewels.' The king expressed himself highly pleased with their martial appearance. From this period, archery, so long the pride and glory of the London citizens, fell into disuse, principally, no doubt, from the introduction of muskets. Hollinshed bewails, that in this time, we had 'given over that kind of artillery,' the long bow, in which, in times past, the chief force of England consisted; and bishop Latimer equally laments the change that had taken place. In his sixth sermon, he says, 'The art of shutyng hath been in tymes past much esteemed in this realme, it is a gift of God, and he hath given us to excell all other nations wyth-

all. It hath bene Godde's instrumente whereby he hath gyven us manye victories agaynste oure enemyes.' He then points out the necessity of calling upon the justices, and charging them 'upon their allegiance, that thys singular benefit of God may be practised.'

In the popular insurrection of the Kentish men, under Sir Thomas Wyatt, in the reign of Mary, the queen requested from the city an aid of 500 footmen, well harnessed, to go against the rebels. It was immediately granted, the men were made ready the same night, and on the morrow marched into Kent. It soon appeared, however, that their ardor sprung from another source than attachment to the queen; for after joining the royal forces under the duke of Norfolk, the Londoners went over in a body to the rebels, and their example was followed by more than three parts of the army, not excepting the queen's guard itself. The city, notwithstanding, still held out for her majesty, but probably owing more to its being temporarily placed under the command of lord William Howard, a devoted servant of the queen's, than to the loyalty of the citizens themselves, who participated largely in the discontent which Mary's marriage to Philip of Spain had excited.

In the second year of Elizabeth's reign, there was a muster of the citizens before her majesty, and the French and imperial ambassadors in Greenwich Park; but it seems, from the comparatively small number assembled, to have consisted of some select companies only. There were '1400 men, whereof 800 were pikemen, all in fine corslets, 400 harquebuts in shirts of mail with merins, and 200 halberdiers in almayne rivets; they had to every 100 two whifflers richly appparelled, and twelve wardens of the best companies, riding in coats of black velvet, to conduct them, with drums and fifes, and six ensigns, all in jerkins of white Bruges satin, cut and lined with black sarsnet, with caps, hozzen, and scarfs according.'

When, in 1572, Elizabeth began to be disturbed in her government by machinations, foreign and domestic, she sent an order to the lord mayor, sheriffs, and aldermen, recommending to them renewed diligence in training up the young citizens to the use of arms for the defence of the capital: and particularly to the use of musketry, which was now beginning to supersede the bow and arrow. The order was obeyed with so much alacrity, that, within two months after a choice body of 3000 pikemen and gunners, completely armed and disciplined, mustered before the queen in Greenwich Park; and these were independent of the city archers, who were estimated to amount to 4000 more.

The preparation in the ports of Spain of the boasted Armada, which was to effect the conquest of England and the re-establishment of popery called for still greater exertions on the part of the citizens of London. From a report of the arrangements made for the defence of the kingdom on that occasion, recently compiled from the records in the tower (printed, but not published), it appears, that London then contained 20,696 able householders within the wards, besides 933 strangers fit for service; and that of this number no less than 10,000 were actually embodied.

Although the lords of the council ordered Edmund York, a brave officer, who had served in the Low Countries, to point out the best means of putting the city in a good state of defence, yet the lord mayor had the supreme command and authority to appoint colonels, captains, and other inferior officers under him. 'Such an honor' says York, 'and such a gracious favor, never happened to any people, neither was the like heretofore done unto them.'

York recommended that the city should be divided into sections, containing 1500 men, 'all inhabitants, which shall be either the householder, his sonne, or continued servant.' Every night at six o'clock, five companies of different regiments were to assemble in the Exchange, 'and there stand in battell a quarter of an hour.' After the countersign was given to every officer, says York, 'a prayer for her majesty's estate and kingdom, and the Lord's prayer, shall be said.' Five billets were next to be put into a hat, which the captains were to draw, to determine their respective stations for the night. So much reliance had the queen upon the courage and attachment of the citizens, that she selected 9000 of them to be her body guard. The remaining 1000 were sent to the camp at Tilbury Fort.

The usual place of training the city bands at this period, was the old Artillery Garden or Ground, the site of which is commemorated by the names of several streets and lanes on the east side of Bishopsgate Street, as Artillery Street, Artillery Lane, Fort Street, &c. 500 of the most expert, who had 'experience both abroad and at home,' were selected to drill the rest, and we are told, that 'very sufficient and skillful they were to train and teach common soldiers the managing of their muskets, pikes, and halberds, march, counter-march, and ring.' These masters of the art military formed a company by themselves, of which 'every man by turn bore orderly office, from the corporal to the captain.' Some of these were sent to the camp at Tilbury, to assist in drilling the new levies, and were then known by the name of the captains of the artillery garden. Such was the rise of that respectable body, still subsisting at the present day, the Artillery Company.

The military ardor which the Spanish Armada called forth, was succeeded by a long period of ease. The whole of the city corps were disembodied, and the exercises in the artillery garden entirely discontinued; so that, when the queen wanted an aid of men from the city, to send to the relief of Calais in 1596, she was obliged to resort to the mode of impressment, and that in a way not attempted perhaps either before or since. On the forenoon of Easter Monday, the lord mayor and aldermen received orders to provide instantly, for the queen's service, 1000 able bodied men. The day and hour were conveniently chosen; the churches, as is usual on this festival, were filled; and thither the magistrates immediately repaired with their proper officers, made fast all the doors, and in a few minutes executed the required levy on the assembled congregations. 'The men were forthwith furnished with armour, weapons, and all things necessary,' and marched

off to Dover before night. The system of pressing, though not in the same indecorous manner, was afterwards repeatedly resorted to during Elizabeth's reign.

A material change in the military exercises of the London citizens took place at the close of Elizabeth's reign, with which the use of the sword and buckler seems to have ended. Stowe relates that, in his time, 'the art of defence and use of weapons was taught by professed masters,' and that the young Londoners, after the evening prayer on holidays, were permitted to exercise themselves with their wafers and bucklers before their masters' doors. The wafers here mentioned were swords with the flat part placed in the direction of the edge. Shakspeare and all the writers of his time mention schools for teaching the use of weapons as common in London; but when the alarm of outward danger had been dissipated, and the pusillanimous reign of James had commenced, military exercises were naturally discountenanced by a king, who had an instinctive horror at the sight of a naked sword; and who praised armour, rather because, as he said, it prevented the wearer from hurting others, than for the protection it gave him.

The danger which might arise from such an habitual neglect of military exercises, at length roused some patriotic spirits to exert themselves to revive the ancient trainings in the artillery garden. In 1610 Philip Hudson, lieutenant of the artillery company, and divers other gentlemen and citizens of London, considering the inconveniences which had been suffered by many 'late populous and flourishing neighbour cities, principally by reason of their neglect of that most noble exercise of arms and martial discipline in times of wealth and peace; they, like loving sons to so glorious a city,' undertook, 'at their own private or particular charge, a weekly exercise of arms and military discipline after the modern and best fashion and construction then in use;' and for their better ease and more convenience, 'they erected a strong and well furnished armoury in the said ground, in which are arms of several sorts; and of such extraordinary fashion and goodness for service, as are hard to be matched elsewhere.' Four years after, James I. commanded a general muster of all the horse and foot soldiers throughout England; and such was the progress which the citizens of London had by that time made in their military re-organization, that no fewer than 6000 of them assembled on the occasion. They were commanded by twenty captains, selected of the most active and forward citizens, and unto every one of them were allotted 300 shot and pikes, being, for the most part, all householders bravely furnished; and such of them as were not formerly of the Martial Society, and practice of the Artillery Garden, became then admitted of that warlike company.

Although the reign of James continued to the last undisturbed by war, the artillery company laudably persevered in their exercises. In 1638 the common council passed an order 'that the trained bands should be made perfect in discipline, and that the greatest care should be taken that low and indigent persons do not impose themselves as officers, but that they be selected

from the most respectable gentlemen, and also from those who are capable and expert.'

When the civil wars broke out, in the reign of Charles I., the trained bands of London, as they were then called, espoused the cause of the people, and are universally allowed to have contributed mainly to its ultimate triumph. After Charles made his rash attempt, in 1642, to seize on Pym, Hampden, and the other obnoxious members of the house of commons, whom he had caused to be accused of high treason; and when these champions of liberty took refuge in the city, and the grand committee of parliament itself was obliged to transfer its sittings to Guildhall, the trained bands placed themselves under the command of major general Skipton, for the purpose of protecting them in the exercise of their parliamentary privileges.

The appeal to arms was at length made, and Charles advancing towards London, defeated colonel Hollis's regiment at Brentford, and took possession of that town. Every possible exertion was then made to prevent his entrance into the capital; 'with unspeakable expedition,' says Clarendon, 'the army, under the earl of Essex, was drawn together, and the trained bands of London led out, in their brightest equipage, upon the heath next Brentford, where they had, indeed, a full army of horse and foot, fit to have decided the title of a crown with an equal adversary.' The parliamentary forces did not amount to less than 24,000 men, 'stout, gallant, proper men, as well habited and armed, as were ever seen in any army, and seemed to be in as good courage to fight the enemy.' 'The good wives and others,' says Whitelock, 'mindful of their husbands and friends, sent many cart loads of provisions, and wines, and good things to Turnham Green, with which the soldiers were refreshed and made merry, and the more, when (after a short time) they understood that the king and all his army were retreated.' Next year the citizens not only repaired and strengthened their walls, but erected an outer line of trenches and fortifications, which included the whole of the suburbs from the end of Shoreditch on the east, to Hyde Park Corner and Vauxhall on the west, and from the end of Kent Street, Deptford Road, on the south, to Bloomsbury on the north. Nothing could exceed the ardor with which these fortifications were prosecuted. Thousands of men, women, and children, assisted by the train bands, and headed by several members of the common council, were constantly at work. The different trades went out in a body on alternate days, as appears by the statements in the 'Diurnals,' and other newspapers of the time. One day, between 2000 and 3000 porters gave their labor, another day 4000 or 5000 shoemakers left their gentle craft to assist in the new fortifications; and the tailors, to the number of 6000, lent their willing and unsolicited aid to the same purpose. The fortifications consisted of a strong earthen rampart, planted with bastions and redoubts. The expense of these works was defrayed by a general levy on the inhabitants, and a loan of £60,000 from the city companies.

The king's affairs taking for a time a prosperous turn, and the city of Gloucester, which had de-

clared for the parliament, being hard pressed by his troops, great exertions were made to send the earl of Essex with an army to its relief; and to encourage the recruiting, for this purpose, the London magistracy had recourse to the vigorous measures of ordering, that all shops, within their lines, should 'be shut up, and continue so till Gloucester was relieved.'

The Londoners accordingly, besides furnishing two regiments of their trained bands, sent forth four auxiliary regiments, three of foot and one of horse. The parliamentary army now marched towards Gloucester, but the king, hearing of their approach, raised the siege and advanced to meet them. The hostile forces met at Newbury, and in that sanguinary fight (albeit they were but keepers of shops), gave signal proof of their hereditary resolution and prowess. 'The London trained bands and auxiliary regiments,' says lord Clarendon, 'of whose inexperience of danger or any kind of service, beyond the easy practice of their postures in their artillery garden, men had till then too cheap an estimation, behaved themselves to wonder, and were, in truth, the preservation of that army that day; for they stood as a bulwark and rampire to defend the rest, and, when their wings of horse were scattered and dispersed, kept their ground so steadily, that though prince Rupert himself led up the choice horse to charge them, and endured their storm of small shot, he could make no impression upon their stand of pikes, but was forced to wheel about.' In the subsequent affair at Cheriton Downs, the Londoners acquired fresh laurels. Two of their strongest auxiliary regiments fought under Sir William Waller, on that occasion, and, as Whitelock tells us, 'did very brave service; they drove the enemy from the hedges, which they had lined with musketeers, and gained the passage to a wood, which stood the parliamentary forces in great stead, and shortly after put the enemy to a rout; which was so total, that scarcely ten of them were left together.'

The city shortly after increased the number of troops they had in the field against the king to 8400; four regiments were under the earl of Essex, and three under Sir William Waller.

Although they continued foremost, in the struggle between the crown and the people, the Londoners, when the parliament and the army quarrelled, and Cromwell rose on the bucklers of the latter to supreme power, fell into the back ground, and suffered but too many affronts and hardships at the hands of those whom they had been the principal means of placing in the seat of royalty. The works about the city were ordered to be demolished; the trained bands were discharged; the treasuries of different city companies were robbed, in order to pay arrears due to Cromwell's soldiers; particularly that of the weavers' company, from which £20,000 were carried off; and, when these were found insufficient for the purpose, bands of these satellites were quartered on the city, not only in the inns, but in private houses, till the deficiency was made up.

During the quarrel between the army and the parliament, the services of the London trained bands were frequently called for to suppress tumults: nor were those of a political nature the

most dangerous to the existing government. In April, 1648, a riot was begun in Moorfields, on account of the infraction of the parliamentary ordinance against tippling and gaming on the sabbath, which required all the energy of Fairfax to suppress. The first party of the trained bands sent to quell the tumult were overpowered by the rioters, who seized their arms, drums, and colors, and daringly beat up for recruits. A mob in a populous city is like a rolling snow ball, increasing as it proceeds; and the rioters were soon so formidable as to be enabled to act on the offensive. The prisons of Newgate and Ludgate were surprised during the night; and next day they attempted to seize Whitehall, but were repelled by the soldiers. They, however, were more successful in the city, where they attacked the mansion house, and carried off a piece of artillery, called a drake. Ammunition was obtained from the magazine, in Leadenhall Street, where they made a stand against the only two regiments then in London, nor did they give way until several of them were wounded, and others taken prisoners.

When the question of the restoration came, after the death of Cromwell, to be agitated, the citizens had their revenge. The king's restorer, Monk, found them well disposed to second his views, and, being appointed major general of their forces, he speedily re-embodied both the trained bands and auxiliary regiments, and, at a grand review in Hyde Park, appeared at the head of no fewer than 18,600 'brave Londoners,' a greater force than the city had mustered for some centuries. It was composed of six regiments of trained bands, six auxiliary regiments, and one regiment of horse. The mere demonstration of such a force, on the order of royalty, at this juncture of affairs, was sufficient. The restoration immediately followed.

Very shortly after, the restored monarch issued a commission of lieutenantancy for the city of London, which vested the commissioners with similar powers to those possessed by the lords lieutenant of counties. The city regiments were by them new modelled, and augmented, the foot to 20,000, and the horse to 800.

The insurrection of the fifth-monarchy men, which took place in the following year, is justly regarded in history as an act of frenzy in a deluded few; but it deserves notice here, as a sort of frenzy which could only have happened in a community injured, as we have seen that of London was, to the use of arms. A body of not more than sixty men, but all well armed, sallied forth from a meeting house in Swan Alley, Coleman Street, under the guidance of one Venner, their preacher, and a mad colonel of the name of Cox, to proclaim 'King Jesus.' They encounter a party of the trained bands, in the interest of 'king Charles,' led on by Sir Richard Brown, the lord mayor, and put them to the rout. They march triumphantly up and down the city, kill a headborough by way of exercise, and then, learning that a body of horse is coming against them, retire for the night to Caen Wood, near Hampstead. Here they are attacked at break of morn; some of them are taken, and the rest dispersed. But next day they rally, return into the

city, and fight a severe battle in Wood Street, with a body of regular horse and a party of the trained bands; two of their best men are slain, and Venner, the leader, wounded and made prisoner; the remainder, under colonel Cox, retire fighting towards Cripplegate: a party of ten take post in a neighboring ale house, and defend it with such resolution, that it is not carried before seven of them are killed; nor until twenty of the whole number, being at least more than the one-half, and twice as many of their opponents, have apparently bit the dust.

The trained bands, 'of whose inexperience in danger, or of any kind of service beyond the easy practice of the artillery garden,' Clarendon says, 'men had too cheap an estimation,' were long the favorite force of the metropolis; and on every occasion, when their services were called upon, proved themselves worthy of the confidence of their fellow citizens. Previous to the civil war, as appears by a tract in the Harleian MSS., containing an account of their musters in 1643, their force, including auxiliaries, exceeded 18,000 men. This species of force, which was neglected during the protectorate, was remodelled by Charles II., and the trained bands alone augmented to 20,000 men. As the restored government found itself secure, this force was reduced, and may be said to have been almost disorganised, when the rebellion of 1715 induced the government to issue an order for it to muster, and be in readiness to suppress any tumults that might arise. The trained bands were still nominally kept up, although six auxiliary regiments and some troops of horse were reduced.

The rebellion of 1745 again roused the military spirit of the metropolis: the trained bands were kept in readiness, and the militia embodied; two regiments were raised at the expense of the merchants, and corps of volunteers incorporated. The lawyers exchanged their briefs for muskets, and the judges their wigs for helmets; the weavers of Spitalfields laid aside their shuttle and distaff for the pike and the bayonet; and even the managers of the theatres offered to form a corps of 'his majesty's servants,' ready to quit the mimic combats of the stage for the tented field. Large subscriptions were raised for supplying the troops with the necessary clothing and the munitions of war, towards which the corporation of the city gave £1000, and several of the city companies contributed liberally. Even the Quakers so far overcame their religious scruples as to raise a considerable sum for the purchase of woollen waistcoats for the soldiers; and, had the danger been more imminent, it is probable they might have been induced to go farther, and, like the Quakers of America at the commencement of the revolution, have subscribed for gunpowder, under the equivocal denomination of grain, or for muskets, under the name of fire irons. The approach of the rebels to Derby increased these preparations: the city gates were guarded; and a large train of artillery was sent from the tower to a camp formed on Finchley Common, where it was determined to raise the royal standard. This circumstance gave rise to Hogarth's admirable picture, the March to Finchley, for which he sought the royal patronage; but the king, who saw

nothing in the picture but that his soldiers were ridiculed, expressed great displeasure; and the print was dedicated to the king of Prussia.

An age of tranquillity succeeded, and the military force of London was kept up more for parade than service, until the French revolution broke out. As the danger approached, the necessary preparations were made with zeal and alacrity. It was at first proposed, that two regiments of militia should be raised by ballot, and placed under the commission of lieutenancy; but this mode was found inconvenient; and in 1796 a new act of parliament was passed, authorising the city to raise two regiments of 600 men each, by enlistment, the expense of which was to be defrayed by a small assessment on each ward. Each regiment was commanded by a colonel, lieutenant-colonel, major, ten captains, ten lieutenants, and ten ensigns, all appointed by the great officers of the city, who formed the commission of lieutenancy. The authority of the crown over the two militia regiments was very limited. His majesty could only order one regiment to march out of the city, and that not further than a distance of twelve miles. The success of the French arms in Italy and Germany, and the threatened invasion of Great Britain, redoubled the military ardor, and volunteer associations were raised in every part of the kingdom. In London they consisted principally of citizens, and other respectable tradesmen, who formed themselves into companies in their respective wards and districts, electing their own officers, finding their own clothing, arms, and accoutrements, and devoting their time and their money to the service of their country. These military preparations were very actively carried on in the year 1798.

The anniversary of the birth of his late majesty was celebrated on the 4th of June, 1799, by one of those spectacles which a free country could alone present. His majesty on that day reviewed 15,000 men, of whom upwards of 8000 were citizen soldiers, who had, from motives of the purest patriotism, formed themselves into military associations, and relinquished for a moment their peaceful occupations, to learn 'the trade of war,' at their own expense, for the purpose of guarding their own and their sovereign's rights, should they have been attempted to be endangered by the threatened invasion. After the troops had gone through their evolutions, much to the satisfaction of his majesty, and the firing was concluded, the whole line waved their caps in the air, and gave three hearty huzzas, which were echoed and re-echoed by upwards of 150,000 persons who attended the review.

The military spirit and patriotism of the city of London had not yet, however, fully developed itself. Every year, every month, and we might say every day, increased the loyal associations of which the nucleus only had as yet been found. In the month of October, 1803, a succession of reviews took place, in which more than 30,000 volunteer troops were reviewed; and this number, large as it was, fell far short of the actual force of the metropolis, which, including a few of the adjacent villages within the bills of mortality where distinct corps had also been formed

amounted to a force of 46,000 men. His royal highness the duke of York, the commander in chief, observed, in his general orders, 'His majesty perceives, with heart-felt satisfaction, that the spirit of loyalty and patriotism, on which the system of the armed volunteers throughout the kingdom was originally founded, had risen with the exigencies of the times; and at that moment formed such a bulwark to the constitution and liberties of the country as will enable us, under the protection of providence, to bid defiance to the unprovoked malice of our enemies, and to hurl back, with becoming indignation, the threats which they have presumed to vent against our independence.' At the peace of 1814 the military force of the metropolis was reduced to the artillery company and the two regiments of militia which had superseded the trained bands.

CHURCHES, PUBLIC BUILDINGS, &c.—We may now advert to the buildings of this great metropolis, and of these, the churches of the establishment, necessarily, take the lead, on account of their magnificence, as well as their antiquity.

The *cathedral of St. Paul's* is the noblest of Protestant churches. Some historians endeavour to prove that it occupies the site of an ancient temple of Diana: but this Sir Christopher Wren discredits; observing that 'having changed all the foundation of old St. Paul's, and upon that occasion rummaged all the ground thereabouts, being very desirous to find some footsteps of such a temple, he could not discover any.' It is not before the time of Augustine we find any trace of a structure here. When he found a patron in Ethelbert, king of Kent, this monarch, in 1619, first founded the cathedral, dedicated it to St. Paul, and endowed it with the manor of Tillingham and other lands. It was of wood; but for the period no mean structure: Dugdale assures us that, in 1675, Erkenwald, then bishop of London, 'bestowed great cost on the fabric thereof, augmenting its revenues very much with his own estate.'

During the heptarchy, this church flourished. Kenred, king of Mercia, declared it to be as free in all its rights as he himself desired to be at the day of judgment. Athelstan endowed it with 106 farms, messuages, &c. Edgar gave it twenty-five mansions, besides a considerable sum in money; and his wife, Eglefleda, two lordships. All these grants were confirmed by the charters of Ethelred and Canute, which solemnly denounce curses on all who dare to violate this place of worship. Edward the Confessor, also, endowed it liberally, so that 'great was the esteem that this cathedral then had.' On the landing of William I. he seized on some of the revenues of St. Paul's; but no sooner was he seated on the throne than he restored them, and confirmed all its privileges.

In 1086 the wooden cathedral was laid in ashes, by a conflagration which destroyed the greater part of the city; but this event made way for a more magnificent building than had ever been raised for the purposes of devotion in this kingdom. To the pious zeal of the bishops, Maurice and De Belmeis, London was chiefly indebted for this new edifice. The latter is said

to have devoted the whole of his revenue to this undertaking. The steeple, which was of timber, was finished in 1221; the quire in 1240; and, in 1283, the cathedral, nearly as it stood in point of magnitude previous to the great fire, was finally completed, with the exception of the pavement, which was not made until the year 1312, when the whole was paved with 'good and firm marble, which cost five-pence the foot.' About this period an exact survey was made of the church; and its dimensions, according to Dugdale, were stupendous.

In length it measured 690 feet; and in breadth 130 feet; the height of the body of the church was 150 feet; and the space of ground comprehended within the walls was three acres and a half, one rood and a half, and six perches. The height of the tower and spire from the level ground was 520 feet: the ball, above the head of the spire, was so large, that it would contain within it ten bushels of corn; the length of the cross, above the ball, or pomel, was fifteen feet; and the traverse of the cross six feet.

Dugdale enumerates no fewer than seventy-six chantry chapels within this sacred fane, and sixty endowed anniversary obits: not fewer than 200 priests are supposed to have been required to perform the various duties of these establishments.

The building was in the Norman style, and is supposed to have presented one of the earliest and finest examples of the use of pointed arches. The decorations within, corresponded in richness and splendor with the magnificence of the exterior. The high altar shone all over with precious stones, and was surrounded with images, 'beautifully wrought.' At the right side of it there was an oil painting of St. Paul, 'placed in a tabernacle of wood,' which is said to have been a masterly performance, having been executed in 1398, at a cost of £12 6s. Near the altar was the splendid shrine of St. Erkenwald, which was for many ages a favorite resort of the pious. Another shrine, nearly as celebrated, was that of Roger Niger, who was made bishop in 1229; Matthew Paris records, that miracles were frequently wrought at it.

Among the uncanonised, but perhaps not less truly eminent personages, to whom monuments were erected in this cathedral, were 'old John of Gaunt, time-honored Lancaster;' the gallant Sydney, author of the *Arcadia*; Dean Colet, the founder of St. Paul's school; and Vandyke, the painter. Here too reposed the ashes of Sir Francis Walsingham, but without a stone to mark the spot. He died so poor that his body was buried by stealth, to prevent its being arrested. The celebration of obsequies for persons of rank once formed a peculiar and a very profitable privilege of St. Paul's. The ambassadors of foreign princes, and many of our nobility, according to Dugdale, the knights of the garter, the lord mayor, and the several companies of London, all attended with great devotion at these ceremonies.

St. Paul's was the place where, in the reign of Edward III., the flagellants, to the number of 120 men and women, exercised their castigations. 'Each day,' says Dr. Lingard, 'at the appointed

hour, they assembled, ranged themselves in two lines, and moved slowly through the streets, scourging their naked shoulders, and chanting a hymn. At a known signal, all, with the exception of the last, threw themselves flat on the ground. He, as he passed by his companions, gave each a lash, and then also lay down. The others followed in succession, till every individual, in his turn, had received a stroke from the whole brotherhood. The citizens gazed and marvelled, pitied and commended; but they ventured no farther.'

After the battle of Bosworth-field, which gave the crown to the earl of Richmond, the king, on arriving in London, rode through the city to the cathedral church of St. Paul (says a MS. in the Lansdown collection, No. 250), where he offered three standards.

On the 6th of April, 1592, the nobles, with the lord mayor and corporation, attended St. Paul's in great state, when Dr. Morton, archbishop of Canterbury, and lord chancellor, addressed them in a long oration, on occasion of the king of Spain having taken Granada from the Moors. Te Deum was sung and great rejoicings followed.

Queen Mary seems to have had particular attention paid to her at St. Paul's. On one occasion, when the queen rode through the city to Westminster, as she passed through the churchyard, a Dutchman of the name of Peter stood on the weathercock, holding a streamer in his hand, five yards long, and, waving it, stood some time on one foot, at the same time shaking the other; 'and then,' says Stowe, 'kneeling on his knees, to the great marvail of all the people.' The city gave him twenty-five marks for his 'cost and paines.' On her marriage with Philip of Spain, when the king and queen passed the churchyard, 'a fellow,' says Stowe, 'came slipping upon a cord, as an arrow out of a bow, from Paul's steeple to the ground, and lighted with his head forwards on a sort of feather bed, and after he climbed up the cord again, and did certain feats,' all of which were repeated on the coronation of Edward VI.

Old St. Paul's was the scene, however, of far more important ceremonies. It was here that the pusillanimous king John signed the resignation of his crown and kingdom to the haughty legate of the pope. Here, too, queen Elizabeth publicly returned thanks to the Deity, for the victory over the Spanish armada; and the colors taken from the enemy still stream in triumph, under the dome of the cathedral.

In the reign of Philip and Mary, we find that the cathedral was a place of common resort and thoroughfare; and that, not only porters and carriers of goods, but beasts of burden were suffered to pass through it. The dean and chapter, too, instead of checking this concourse, turned it to their profit, by imposing a toll on each passenger. The abuse at length became so flagrant, that an act of common council was issued to restrain it. Many shops, and houses too, were built against the outer walls of the cathedral, and even a playhouse is said to have been among the erections here.

The Burnynge of Paules Church in London,

an old tract written in the year of our Lord 1561, points out the different places where business of various sorts were carried on. 'The south alley for usury and popery; the north for simony and the horse faire; in the midst, for all kind of bargains, meetings, brawlings, murders, conspiracies; and the font, for ordinary paiement of money, are so well known to all menne, as the beggar knows his dishe.'

The simony and trading in benefices, carried on in St. Paul's, appears to have been long known. Chaucer alludes to them in the prologue to his *Canterbury Tales*, and bishop Hall, in one of his satires, broadly mentions them as notorious. Advertisements were openly posted on the doors for the sale and purchase of benefices, beginning usually with the words *Si quis*, a circumstance thus alluded to by bishop Hall:—

Saw'st thou ever *Si quis* patch'd on Paul's
church door,
To seek some vacant vicarage before?
Who wants a churchman, that can service say,
Read, fast and faire, his monthly homile, y
And wed and bury, and make Christian soules?
Come to the left side alley of Saint Paul's,
Thou servile foole.

The description of the satirical bishop has many illustrations: 'I bought him in Paul's,' say Falstaff, in speaking of Bardolph. Massinger also, in his *City Madam*, thus alludes to it as: notorious thieves' sanctuary.

'Dining with duke Humphrey' was applied at this time, to persons who walk about for lack of a dinner to sit down to. 'Are they none of duke Humphrey's furies? Do you think the Devised this plot to get a dinner?' (*Mulco a Midnight*.) That is, one of the aisles of St. Paul's was called duke Humphrey's Walk, from a popular notion, that the good duke Humphrey of Gloucester was buried there; though the fact is, that the duke was buried at St. Alban's, and the monument which the vulgar supposed to be erected to his memory was one placed over the remains of Sir John Beauchamp, son of Gu Beauchamp, earl of Warwick.

We cannot here detail the further history of the old building. Large sums of money were collected under king James I. commission, and considerable quantities of building material actually provided for its repair; but the reign of James elapsed without the work being commenced. The duke of Buckingham is said to have borrowed some of the latter for the erection of the water gate at York House. On the appointment of Laud to the see of London, this prelate exerted himself with great vigor and success in favor of the neglected building, and set on foot a new subscription, which produced in a short time £101,330 4s. 8d. The celebrated Inigo Jones was employed to superintend the repair; but, before any thing material was effected, the great fire came, and reduced it to a heap of ruins.

The subscriptions for building a new cathedral which commenced soon after the fire, amounted in the course of ten years, to £126,000; a new duty was laid on coals for the same purpose which produced £5000 a year; and king Charles I. contributed £1000 annually. When w

ordered to prepare designs for the inspection of the king, and, fixing upon one of them, his majesty commanded a model of it in wood to be prepared on a large scale. Of this model, which is suffered to remain in a dilapidated state in an apartment in the cathedral, where it is exhibited, a living architect (Mr. Elmes) says, 'it possesses an originality peculiarly striking; copied from no other building, it exhibits judgment and invention in every turn.'

Excellent as the plan was, it was rejected, on the ground that it differed too much from the preconceived notion of cathedral churches; the secret appears to have been, that it was not adapted to the ceremonies of the Roman Catholic church, which the duke of York hoped to restore, and therefore he used his influence to get the plan rejected. It was with the same view that the duke obtained the addition to the plan that was adopted, of the side oratories, which so much broke in upon the design, that the architect is said to have shed tears when he was compelled to admit them.

The commission for rebuilding the cathedral was issued under the great seal, dated November 12th, 1673. The business of taking down the ruins of the old structure was one of considerable labor and difficulty. To the middle tower, the ruins of which were 200 feet high, a blast of eighteen pounds of gunpowder was applied, under the direction of the architect; and, comparatively small as this force was, it raised the whole angle of the tower, with several adjoining arches; visibly lifting the vast mass, which was not less than 3000 tons in weight, about nine inches, when, tumbling back again suddenly, it dropped into a heap of ruins, but with such a concussion, that the inhabitants in the neighbourhood took it for an earthquake. Sir Christopher also now resorted to that ancient engine of war, the battering-ram; a beam of timber forty feet long, well secured with ferrules, and suspended from a triangle, was vibrated by thirty men for a whole day against a part of the wall without any apparent effect, but on the second day the whole was thrown down.

The first stone of the new cathedral was laid on the 21st of June, 1675, by the great architect himself, who lived to see his son, then only a few months old, thirty-five years afterwards, deposit the highest stone of the lantern on the cupola.

In 1693 the walls of the new choir were finished, and the scaffolding removed; and on the 2d of December, 1697, it was opened for divine service, on occasion of the thanksgiving for the peace of Ryswick. The morning prayer chapel was opened for divine service the 1st of February 1699. It is remarkable that this mighty fabric was begun and finished by one architect, Sir Christopher Wren; one principal mason, Mr. Strong; and during one bishopric, that of Dr. Henry Compton, bishop of London.

The total expense of the building was £736,752 2s. 3d.

The dimensions of this cathedral, compared with that of St. Peter's, are, according to the Parentalia, as follows:—

	St. Pau's.	St. Peter's.
Length within	. 500	669ft.
Greatest breadth	. 223	442
Height . . .	. 340	432

In the construction of the edifice, the architect was forced to observe the general shape of a cross, and yet it exhibits little or none of the awkwardness of that form of building. By means of an additional transept or arm he has given due breadth to the west end or principal front; the east end terminates in a projecting semicircle; and at the extremities of the principal transept there are also semicircular projections for porticos, while the angles of the cross are occupied with square appendages, which serve as buttresses to a magnificent dome or cupola.

The front of the building on the west presents a grand portico of the Corinthian and Composite orders, surmounted by a spacious pediment, with a lofty tower or steeple of great elegance and richness on each side. In the tympanum, the conversion of St. Paul has been well sculptured in basso relievo, by Birt; on the apex is a colossal statue of St. Paul, and on either hand, at different distances along the summit of this front, are similar statues of St. Peter, St. James, and the four evangelists. The semicircular porticos at each end of the principal transept are of the Corinthian order, and are also crowned by statues of the apostles. The tympanum of that on the north side, exhibits a sculpture of the royal arms and regalia, supported by angels; and that of the other the phoenix rising from the flames, as before mentioned. The side walls of the building present the appearance of a two storied structure; there being two ranges of pilasters all round, one of the Corinthian, and the other of the Composite order; the intervals between which are occupied with windows. The dome or cupola is the most striking feature of the whole edifice. A plain circular basement rises from the roof of the church to the height of twenty feet; above that there is a Corinthian colonnade of thirty-two columns; and every fourth intercolumniation is filled with masonry, so dispersed as to form an ornamental niche or recess, while, at the same time, the projecting buttresses of the cupola are thus concealed. The entablature of the peristyle supports a handsome gallery surrounded with a balustrade. Within this rises an attic story, with pilasters and windows, from the entablature of which springs the exterior dome. Round an aperture on the summit of the dome there is another gallery, from the centre of which ascends an elegant lantern, surrounded with Corinthian columns, and surmounted by a ball and cross richly gilt. When viewed, especially, from any of the heights round the metropolis, such as Hampstead, or Highgate, or Shooter's Hill, its dome has a very noble appearance; though there, perhaps, it is rather to be regarded as a cupola to the vast metropolis itself, than to any single edifice. 'Considered in this light,' as Mr. E. Aikin remarks, 'the coldest critic, the most rigid theorist, could not wish to subtract a particle from its rich exuberance.'

The adoption of the two orders of architecture,

it must be remembered, was a matter not of choice but necessity. The quarries of the Isle of Portland, from which alone the stones for the building could be procured, could not furnish blocks of magnitude enough to enable the architect to raise his series of pillars all of one order; that is, to make the lowest order of the necessary elevation.

On entering the building, there is one discrepancy which strikes a stranger more forcibly than any that can be remarked in the exterior. Contrary to what he has been led to expect, from the division of the walls on the outside, into two stories, he finds no such corresponding division within. Although disappointed, however, he is far from being displeased. The unexpected loftiness of the vaulting, and of the long range of columns and piers which burst on the sight, add still farther to those ideas of vastness and magnificence which the exterior has inspired. Sir Christopher chose the hemispherical manner of vaulting, as being 'demonstrably much lighter' than diagonal cross vaults; and that demonstration we have here before us. 'The whole vault of St. Paul's consists of twenty-four cupolas, cut off semicircular with segments to join to the great arches, one way, and which are cut across the other way with elliptical cylinders to let in the upper lights of the nave; but, in the aisles, the lesser cupolas are both ways cut into semicircular sections, altogether making a graceful geometrical form (distinguished by circular wreaths.)'—*Parentalia*.

The great dome over the central area is supported by eight stupendous piers, four of the arches formed by which open into the side aisles. It has been so constructed as to show a spacious concave every way; and, from the lantern at the top, the light is poured down with admirable effect over the whole, as well as through the great colonnade that encircles its basement. The inside is divided into light compartments, in which there are as many paintings of subjects from scripture, by Sir James Thornhill; but, though originally executed with much animation and relief, the colors are now so faded, that they present to the eye of the observer below only a confused mass of stains. Sir Christopher Wren wished to have beautified the inside with the more durable monument of mosaic work; but in this, as in other instances of correct foresight, he was unhappily over-ruled. The choir is separated from the body of the church by handsome iron railings. Over the entrance to it is the organ gallery, and an organ in it supposed to be one of the finest in the kingdom. It was erected in 1694 by Bernard Schmydt, or Smith, for £2000. On the south side of the choir is a throne for the bishop; on the north another for the lord mayor; and, besides these, there is on each side a long range of stalls. The whole are richly ornamented with carvings. In the chancel, or semicircular recess at the east end, stands the communion table. What is called the altar piece, has four fluted pilasters painted in imitation of lapis lazuli, and is besides ornamented with a profusion of gilding; but its appearance is on the whole insignificant. It is due, however, to the memory of Wren to notice, that he had

other designs for this part of the building than those which have been realised. The pulpit and reading desk are both splendid objects; the former was designed by Mylne, and is richly carved and gilt; and the latter consists entirely of brass gilt, and is very light and airy. In the south end of the western transept there is a chapel for morning prayers, and in the north the consistory; both are divided from the aisles by screens of insulated columns, and ornamental carved work.

In the spaces between the great pilasters of the nave, Sir Christopher Wren has omitted inserting, as is usual, the architrave and frieze of the order, and this apparently for the purpose of raising the summits of the arches above the level of the architrave. We learn from the *Parentalia*, however, that he did not consider this to be any deviation from the strict rules of art; he always insisted that he had the ancients on his side, and would refer to the Temple of Peace, to the great halls of the Baths, for proofs that in large structures of three aisles this is done, and for this reason, that, in such wide inter-colunimations, 'the architrave is not supposed to be from one great column to another, but from the column to the wall of the aisle, so that the end of it only will appear upon the pillar of the inside of the great navis.'

In 1773 Sir Joshua Reynolds made an offer from himself, and a number of other painters of the first eminence, including West, Barry, Cipriani, Kauffman, Dance, &c., to paint various pictures, free of charge, to adorn the naked walls; but the offer, so honorable to them, was declined, on the ground (which, considering the Protestant riots of a later period, cannot be considered as altogether fallacious), that popular clamors would be excited by the idea, that 'popery and the saints were again to be admitted into our churches.' At a later period, a proposition for the introduction of monumental sculptures was attended with more success; and, considering that the same objection scarcely applies to them, it is surprising that it should not have been made earlier.

The first statue erected in St. Paul's was that of our great lexicographer, Dr. Johnson. Since then, about forty other monumental tributes to the illustrious dead of this country have been added; and, being all of white marble, and generally well distributed, they unquestionably contribute greatly to the relief and embellishment of the architecture. The monuments have in themselves, however, little to boast of.

It is due, at the same time, to the artists, to observe, that there is but too much reason to think that they have not always been allowed the free exercise of their own judgments, but have been often obliged to embody the gross conceptions of ignorant committees of superintendence and direction. When the dean and chapter first came to the resolution of admitting monuments into the cathedral, they resolved that no monument should be erected without the design being first approved of by a committee of the Royal Academicians; but it is asserted, that, 'from the influence of some unexplained imperium in imperio, the ultimate decision was not intended to be given to the committee.' A vindicator of

Chantrey from his share in the allegorical mania, says, that the design in which it occurs was made entirely in deference to the powers who sit in judgment on these occasions, and under the certain conviction, that without submission to the prevailing taste his model would have been thrown aside, as he had before repeatedly experienced.—Britton's Illustrations of the Public Buildings of London.

But few of the persons to whom monuments are erected in the cathedral, have been really buried here. Among the number, the first who claims our notice is the great architect of the building, Sir Christopher Wren. Descending to the vaults by a broad flight of steps, you see beneath the south-east window, inscribed on a low tomb, the following simple epitaph: 'Here lies Sir Christopher Wren, Knight, builder of this Cathedral Church of St. Paul, who died in the year of our Lord MDCCXXXIII., and of his age XCI.' On the wall, above, there is an additional inscription in Latin, with which the public are more familiar, and which may be thus translated: 'Beneath lies Christopher Wren, the builder of this church, and of this city, who lived upwards of ninety years, not for himself, but for the public good. Reader would'st thou search out his monument? Look around. He died 25th February, 1723, aged ninety-one.'

At the suggestion of the late Mr. Mylne, the architect, it has been repeated on a tablet in front of the organ gallery in the choir; yet even there the effect is incomplete. Considering that Wren was in truth the builder, both 'of this church and this city,' the reader should be enabled, to 'look around' on both, to behold 'his monument.'

In these vaults, also, repose the mortal remains of the immortal Nelson, and of his friend and companion in victory, Lord Collingwood, both of which were deposited here with all those funeral honors which a sorrowing country could bestow. Here too lie interred those eminent masters Reynolds, Barry, and Opie, in contiguous graves; the eloquent and sagacious Loughborough; the learned and pious Dr. Newton, bishop of Bristol; Dr. Boyce, the organist and composer; the eccentric disciple of animal magnetism, Mainan-dot; and a few others of inferior note.

After examining all that is to be seen in the lower part of the cathedral, the visitor has still to make the ascent to the summit, to examine the interior of the vast dome, and to enjoy the magnificent views, which the outside galleries furnish of this vast metropolis. You ascend by a spacious circular stone staircase, to a gallery which encircles the lower part of the interior of the dome, and is called the whispering gallery, from the circumstance, that the lowest whisper breathed against the wall, in any part of this vast circle, may be accurately distinguished by an attentive ear on the very opposite side. The paintings within the dome, you find, even on this nearer inspection, scarcely distinguishable. All the lower parts have perished utterly, and the rest are in a state of rapid obliteration. The subjects were all chosen from the life of St. Paul, as recorded in the Scriptures, from his miraculous conversion near Damascus, to his shipwreck at Melita.

Branching off from the circular staircase, at this place, there are passages which lead to other galleries and chambers over the side aisles. One conducts you to the Library of the chapter, which is immediately over the consistory. The floor of this apartment is a great curiosity, being entirely constructed of small pieces of oak, without either nail or peg, and disposed into various geometrical figures, with the utmost nicety. Above the chimney there is a good half length portrait of the protestant bishop Dr. Compton, who bequeathed the whole of his books to the library, which is not however of much value as a collection. Over the morning prayer chapel, at the opposite end of the transept, is a room called the Trophy Room, from being hung round with various shields and banners used at the ceremony of Lord Nelson's funeral. In this room are kept the rejected model, according to which Sir Christopher Wren first proposed to erect this cathedral, and also the unexecuted model of the altar piece. From the whispering gallery, the visitor ascends to the stone gallery, which surrounds the exterior dome above the colonnade; and from this elevation, when the atmosphere is clear, the view around is magnificent. As the staircase above this becomes very steep, narrow, and dark, not many visitors can prevail on themselves to go higher; and yet there is much to repay both the trouble and apprehension attending the ascent. In the crown of the dome there is a circular opening, from which the superstructure of the cone and lantern, and cross, rise nearly 100 feet higher. Around the exterior base of the cone there is a railed gallery, called the golden gallery, from which you have a more extended, and, on account of the increased diminution of individual objects, a more curious view of the busy world beneath. If your head is steady enough to master the feeling of dizziness which overpowers most people at so great an elevation, and makes them feel that the only pleasure in going up is the pleasure of coming down again, you may even ascend by ladders into the lantern itself, and, from the bull's eye chamber, extend your survey far into the country on every side. Here did a most ingenious and persevering artist, Mr. Thomas Hornor, pass the whole summer of 1821, in taking a panoramic view of this vast metropolis and its environs, which is now publicly exhibited in an edifice erected for the purpose, in the Regent's Park.

When the visitor has reached the bull's eye chamber, it will not cost him much additional exertion of courage to mount into the ball which crowns the lantern. It is six feet two inches in diameter, and capacious enough to contain eight persons with ease. The weight of it is stated to be 5600 lbs. The cross, which is solid, weighs 3360 lbs.

In descending from this lofty perambulation, the visitor, when he reaches the whispering gallery, may return to the lower part of the church by a different staircase from that by which he ascended, called the geometrical staircase. It is, however, seldom used, and is chiefly resorted to by the curious in architectural matters, on account of the singularity and skillfulness of its construction. The stairs go round the concave

in a spiral direction; and the base is a circle inlaid with black and white marble, in the form of a star. The towers or steeples, which have been before described, as forming part of the western front, serve, one as the belfry, and the other as the clock tower. The great bell of St. Paul's, which is of some celebrity, never being tolled except at the deaths and funerals of members of the royal family, or of the bishops and lord mayors of London, when the sound of it is heard at a great distance, is stated to weigh four tons and a quarter. It has these words inscribed on it, Richard Phelps made me, 1716.

In the area before the west front of the cathedral there is a statue of queen Anne, by Bird, on a sculptured pedestal, representing Britannia, Hibernia, America, and France. Neither the statue nor the pedestal does much credit to the artist.

Church of Saint Faith.—In early times, there stood, near the east end of St. Paul's cathedral, a separate church belonging to St. Faith's parish; but it was taken down on the rebuilding of the cathedral, after the fire of 1086, in order to give greater room for the new fabric; and, in place of it, the parishioners of St. Faith's had assigned to them, that part of the crypt or vaults of St. Paul's situated immediately under the choir, which was formed into a distinct place of worship, and called *Ecclesia Sanctæ Fidei in Cryptis*. It became hence a common saying

This church needs no repair at all,
For Faith's defended by St. Paul.

In the reign of Edward VI. the parishioners of St. Faith's removed into another place of worship in the crypt, which had then been suppressed, called Jesus chapel; and the church of St. Faith was occupied by the Stationers' company, as a repository for their goods. After the great fire of London, the parish of St. Faith was united to that of St. Augustine; and, on the rebuilding of the cathedral, there was allotted to the parishioners of St. Faith a portion of the new crypt, for the purpose of interments, as also a large portion of the outer burial ground.

CHURCHES ERECTED PREVIOUSLY TO THE GREAT FIRE.

In London there are not above twenty churches which date their erection prior to the great conflagration of 1666. This fire destroyed eighty-nine churches, besides chapels, and threatened to annihilate every venerable edifice in the metropolis. One of the most ancient of those buildings which remain is the church of St. Peter ad Vincula, in the tower, already described. Several of the others are entitled to a brief notice.

St. John the Baptist.—This church is almost the only remains of the ancient palace of the Savoy, in the Strand, which was built in the year 1245. It does not appear that the chapel suffered by the riots of the Kentish rebels, already noticed, but a considerable part of the palace was demolished, and the whole was repaired in 1509. The roof of this church is very fine, being divided into pannels, on which numerous religious and heraldic devices are carved.

This church, which was very tastefully repaired in 1820, contains several ancient monuments of the Willoughby, Howard, and Compton families, as well as of other persons.

St. Dunstan's in the West.—No church in London was perhaps so well known as St. Dunstan's, in Fleet-street; not certainly on account of its external elegance, but for the equivocal celebrity it has acquired by the two wooden figures placed on a pediment in front, in 1671, representing savages, who indicated the hours and quarters by striking a bell with their clubs. As they were very visible in the street, 'they are,' says an historian, 'more admired by many of the populace on Sundays, than the most elegant preacher from the pulpit within.' Charity induces us to hope better, particularly as Dr. Donne, the celebrated Richard Baxter, and the pious Romaine, were preachers at St. Dunstan's. The old church of St. Dunstan was taken down, and replaced in 1832 by an elegant structure in the Gothic style, from a design by John Shaw.

St. Giles', Cripplegate, is one of the best Gothic buildings in London, and was erected in 1546, on the site of the ancient church, built by Alfune, the first master of Bartholomew Hospital in 1090, and burnt down in the year 1545. It is a light, airy, well-proportioned structure, which will always be attractive to the antiquary and the poet, on account of its being the place where Speed the historian, Fox the martyrologist, and Milton, were interred. Oliver Cromwell and his wife, Elizabeth Boucher, were married in this church.

St. Bartholomew the Great.—This church part of the ancient priory of St. Bartholomew, in Smithfield, owed its foundation to Raherus, 'a witty gentleman, and therefore in his time the king's minstrel,' about the year 1202. Matthew Paris relates a singular rencontre which took place in this priory, when Boniface archbishop of Canterbury, in a visitation, thought fit to go out of his diocese, and visit it. The canons, though willing to receive him as a guest, would not on this occasion acknowledge his authority; whereupon the bishop called the said canons 'English traitors,' and, after striking the sub-prior in the face 'the archbishop,' honest Mathew adds, 'with oaths not to be recited, rent in pieces the rich cape of the sub-prior, and trod it under his feet, and thrust him against a pillar of the chancel with such spiritual violence that he had almost killed him.' The archbishop was, in his turn, knocked down; but his men came to his assistance, and routed the canons, who 'ran bloody and mired and torn, to the bishop of London, to complain.' The church was rebuilt about the year 1410.

St. Bartholomew the Less.—This church, which is entered through Smithfield, appears to be of considerable antiquity, as there are monuments in it of as early a date as the year 1438. The sculpture in the interior, which is in the Saracenic Gothic style, is very antiquated.

St. Helen's, Bishopsgate, so called on account of its being dedicated to the mother of Constantine, was originally a priory of black nuns founded anterior to the reign of Henry III. The church, which is a light Gothic structure, with a

ower, built in 1669, is honored with the remains of Sir Julius Cæsar, Sir Thomas Gresham, Sir John Crosby, Hooke the astronomer, and other worthies. The parsonage was leased out by queen Elizabeth, in lieu of a pension, to captain Nicholas Oseley, who, while in Spain, gave the first intelligence to the English court of the fitting out of the Spanish armada.

St. Andrew Undershaft.—This church, which is situated in Leadenhall Street, is so called on account of a May-pole, or shaft, having formerly been raised here every year on the 1st of May, which was higher than the church-steeple, until Sir Stephen, a bigot of St. Catherine's church, preaching at St. Paul's Cross, called it an idol, when the inhabitants, over whose doors it had been suspended on iron hooks, returned home, and cut it to pieces. This church was rebuilt in the year 1525, at the expense of William Fitzwilliam, the founder of the noble house of Wentworth.

St. Olave, Hart Street, Crutched Friars, is a church which has nothing but its antiquity to recommend it. The first record of it is in 1319, since which time it has neither had external or internal grandeur to boast of; nor does it appear that a single individual of note sleeps within its walls.

Near the tower stood, till 1825, the *Church of St. Catharine's Square*, so called to distinguish it from St. Catharine Cree, already noticed. It formerly belonged to an hospital founded in 1148 by Matilda, consort to king Stephen. The church, which was collegiate, was a neat Gothic building, with several very handsome stalls; an elegant east window, which distributed a flood of light on all around; an octagonal pulpit, which represented, on its sides, the ancient building, and the several gates of the hospital; and an altar, which was the finest specimen of the Gothic style in England. The organ, which was erected in 1778, was fine toned and of great power. This church, after escaping the fangs of Henry VIII. and the Puritans, had nearly fallen a prey to the rioters of 1780, who, headed by a soldier of the name of Macdonald, and two women, were proceeding to demolish it, on the ground that it was built in the times of popery. But some of the members of the London Association arrived in time to save this venerable pile from destruction; and Macdonald and the women, who were afterwards arrested, were executed on Tower Hill. This church was, however, obliged to be taken down in the year 1825, to make room for the new dock, called St. Catharine's Dock.

St. Saviour's, Southwark.—This church, which was originally founded previous to the arrival of the Normans in this country, was successively a house of sisters, a college of priests, and a priory of canons regular, and was supported by a ferry across the river. The church, which was formerly, and is now sometimes, called St. Mary Overy, was rebuilt in the year 1400. John Gower, the poet, the friend of Chaucer, and author of the *Confessio Amantis*, was a liberal benefactor, and was interred within its ancient walls. When the priory had been surrendered to Henry VIII., or rather seized upon by that monarch, the inhabi-

tants of Southwark purchased it, with a charter which constituted the churchwardens a corporation. At a subsequent period this corporation appear to have manifested very little regard for their purchase, and to have actually let a part of it out for sixty years as a common bakehouse.

This church, which is very spacious, with three aisles and a cross aisle, like a cathedral, is of the ancient Gothic order; twenty-six pillars, in two rows, support the roof of the church; and the chancel, and the galleries in the walls of the choir, are adorned with pillars and arches, similar to Westminster Abbey. The tower, which is erected on four very strong pillars, with the spire, is 150 feet high, and contains twelve of the finest bells in Great Britain. It is memorable from its being the place whence Hollar took his views of London.

Gower is not the only poet who has been buried in this church, for here sleep, in one grave, Philip Massinger, and Fletcher. The celebrated cashier of the Bank, Abraham Newland, is also interred in an obscure corner of this church.

The *Church of St. Pancras*, which was built in the fourteenth century, is of small size and rude architecture; it consists of a nave and chancel, in which are several monuments; and no church or church-yard, in or near the metropolis, affords a last home to such a diversity of characters as are buried within its precincts. Jeremy Collier, the non-juror, and Father O'Leary, the amiable friar of the order of St. Francis; Pascal Paoli, the Corsican patriot (who has a monument in Westminster Abbey); Woollet, the engraver; Cavallo, the Neapolitan philosopher; and Chevalier D'Eon, the knight-errant of the last age, have all been buried in the church or church-yard, where a plain square monumental pillar, with a willow tree on each side, bears an inscription which records, that here also lie the remains of the philosophic Mary Wollstonecraft Godwin. The church-yard is remarkable for the great number of Roman Catholics interred in it; and the church was the last in England where mass was performed.

Allhallows, Barking.—This church, which escaped the fire, was built in 1651, at the corner of Seething Lane, Great Tower Street. It formerly belonged to the abbess and convent of Barking in Essex, whence its name is derived. It is a spacious church, and contains a mixture of Tuscan and modern Gothic architecture.

St. Ethelburga is a small church on the east side of Bishopsgate. It is supposed to have been erected in the year 1420; and a charity was founded here in 1436. It is a Gothic building, with a small spire; and, among other monuments, contains one in memory of a person of the name of Williams, who had attended on forty-two lord-mayors, and died in 1583.

St. James's, Duke's Place.—This church, which is very small, and built of brick, was erected in 1622 on the site of the priory of the Holy Trinity, founded by the empress Maud in 1108. As it was the richest priory in England, it was one of the first that was dissolved.

CHURCHES BUILT AFTER THE GREAT FIRE BY
SIR CHRISTOPHER WREN.

This great architect erected fifty new churches, between the years 1668 and 1718, a list of which, chronologically arranged, is subjoined.

St. Olave, Jewry, formerly called *St. Olave*, Upwell; situated in the Old Jewry, and erected after the fire of 1666.

St. Dunstan's in the East, *St. Dunstan's Hill*.—This church was only partially destroyed by the great fire. The body, which remained, has since been rebuilt, in 1820, under the direction of Mr. Laing, who was enabled to preserve the singularly beautiful tower and spire erected by Sir Christopher. The spire is raised on four Gothic arches, and presents a light and airy appearance.

St. Michael's, Wood Street.—So early as the year 1359 the church of *St. Michael's* was liberally endowed: and tradition reports, that the head of James IV. of Scotland was buried here, after the battle of Flodden field. The new church, which is of the Ionic order, was erected in 1669. The old turret has since been altered into a clumsy spire.

St. Stephen's, Walbrook.—This church is more celebrated on the continent than the cathedral of *St. Paul's* or Westminster Abbey.—Although there was a church in this parish so early as the year 1135, yet the site on which the present beautiful edifice is erected was not thus occupied until the year 1429. The first stone of the new church was laid in 1672, and in 1679 it was completed. The interior is allowed to be of the most beautiful and matchless architecture.

St. Mary, Aldermanbury, was erected on the site of an old church, which appears to have stood five centuries and a half, when the fire of London destroyed it. The infamous judge Jefferies was buried in this church.

St. Nicholas, Cole Abbey, Old Fish Street.—A plain stone building, with a square tower.

St. George, Botolph Lane.—A small neat church, of Grecian architecture: indeed, a large church is quite unnecessary, as the parish, according to the census of 1821, only contained thirty-three houses, two of which were uninhabited, and a population of 101 persons.

St. Bartholomew, Bartholomew Lane.—Rebuilt in 1670.

St. Stephen, Coleman Street.—A chapel belonging to the deans of *St. Paul's*; rebuilt in 1670.

St. Michael, Bassishaw, Basinghall Street.—An ancient rectory, which, in 1140, was in the presentation of the prior and canons of *St. Bartholomew's*. The old church, which was taken down in 1460, is said to have been very beautiful. Two centuries after it was rebuilt it was destroyed by the great fire, and succeeded by the present edifice.

St. Michael, Queenhithe.—Built in 1677.

St. Ann and *St. Agnes*, *St. Anne's Lane*.—A plain edifice with a square tower; built in 1685.

St. Mary-at-Hill, Lower Thames Street, was only partially destroyed by the great fire. It is surmounted by a plain square brick tower, built in 1670.

St. Christopher-le-Stock.—This church, which was rebuilt by Sir Christopher Wren, was taken down after the riots of 1780; and its site has since been occupied by the additional buildings to the bank of England.

St. Vedast, Foster Lane: dedicated to a bishop of Arras in 484; rebuilt in 1698.

St. Sepulchre's, Skinner Street.—It is not known when this church was first erected; but there are records of its existence in the middle of the thirteenth century; and it is probable that it is one of the oldest foundations in London. The church that was erected in 1440 was not entirely destroyed by the great fire, but it was almost entirely rebuilt in 1670.

St. Mary Woolnoth, Lombard Street.—Although this church is entered in the MS. of Sir Christopher Wren, yet it was built by his pupil, Nicholas Hawksmoor, probably from some designs by his master, particularly the interior. The Rev. John Newton, the friend of Cowper the poet, was rector of this parish.

St. Mildred's, Poultry, 1676.

St. Bennett Fink, Threadneedle Street, 1673.

St. Mary le Bow, Cheapside.—This church, which is supposed to have been erected in the reign of William I., was the scene of many interesting events. It was unroofed in 1090 by a tempest, and in 1271 a great part of the steeple fell down, when several persons were killed. Five years afterwards, when Fitz-Osbert, commonly called Long Beard, had raised an insurrection, he sought refuge in this church, and fortified it.

When the church had been destroyed, by the fire of 1666, Sir Christopher Wren, who had intended to raise two arches over the pavement, was compelled to erect the edifice to range with the street, when, in digging to the depth of eighteen feet, he found a Roman causeway four feet thick on which he laid the foundation. The principal ornament of this church is its steeple, which combines the five orders of architecture, and is considered as one of the chef-d'œuvres of this master. It is 225 feet high, and is surmounted with a gilt ball and dragon. The inside contains two Corinthian and two semi-pillars in length, against each of which are two pilasters; and it is from those that the arches between the nave and side aisles are turned. Their capitals are foliage, and the arches have cherubim on the key stones. They reach to the great cornice of the order continued round the church, and consequently the architecture and frieze are confined to the columns.

In 1818, a survey having been made of this church, the steeple was deemed unsafe, and it was determined that it should be taken down and rebuilt, which has since been done, and the church otherwise substantially repaired.

St. Michael's, Cornhill.—This church dates its origin beyond the year 1133, when it was presented to the abbot and convent of Evesham. The present church which is justly admired for its beautiful Gothic tower, and the admirable symmetry with which the various orders of architecture are combined, was erected in 1672. Fabian the alderman and historian has a monument in this church.

St. Magnus, London Bridge, 1676.

St. Edmund, Lombard Street, 1690.

St. Lawrence, Jewry.—Edward I. gave the patronage of this church to Baliol College, Oxford, which now possesses it. The church was rebuilt in 1677. It is a handsome building, and the interior has lately been rendered very elegant. A monument of archbishop Tillotson adorns this church.

St. Bride's, Bride Lane, Fleet Street, is another of those churches on which Sir Christopher Wren bestowed the greatest care. The church is a plain but neat structure; but it is in the lofty spire that the taste and skill of the architect are displayed. This spire was much injured by lightning on the 18th of June, 1764, when several large stones were forced from their places, one of which fell through the roof into the north gallery, and another was thrown into a house in Bride Lane. It was, however, soon repaired, though at an expense of £3000. This spire was again struck by lightning in 1805, and, in repairing it, the steeple was somewhat lowered. In 1822—3 this church, which the parishioners guard with just pride, was substantially repaired, and a rich window of stained glass added. Since this period advantage has been taken of a fire to throw open the view of this church from Fleet Street. Among the eminent persons buried, are Samuel Richardson, the author of *Pamela*; Sir Richard Baker, the author of the *Chronicle of the Kings of England*; Pope's *Corinna*, Mrs. Elizabeth Thomas; and Wynken de Worde, the famous printer.

St. Dionis, Buck Church, Lime Street, Fenchurch Street, rebuilt 1674-84.

St. James, Garlicke Hill, rebuilt in 1683.

St. Peter's, Cornhill.—This church is of very ancient foundation, and very richly endowed. The present plain edifice was rebuilt immediately after the great fire. There is a plain monument in this church to the memory of seven children, the whole offspring of James and Mary Woodmason, who were burnt to death in a house in Leadenhall Street, in 1782.

St. Bennet, Paul's Wharf, built in 1181, and rebuilt in 1682. Inigo Jones is said to have been buried in this church, but there is no record of the circumstance.

St. Martin, Ludgate, 1684.

Allhallows the Great, Thames Street, 1683.

St. Swithin's, Cannon Street.—A small but elegant church, built in 1680, on the ruins of one of very ancient foundation. This church is memorable from the celebrated 'London Stone' being placed in front of it.

Christchurch, Newgate Street.—Previous to the dissolution of the monasteries, this was the church of Gray Friars, and one of the most superb conventual houses in the metropolis. It was built in the beginning of the fourteenth century, and was consecrated in 1325. The ancient church, which was burnt down in the fire of London, was of large dimensions, being 300 feet long, eighty-nine broad, and sixty-four feet high. The only part that has been rebuilt is the choir, to which has been added a tower, not remarkable for its exterior grandeur. It is an elegant and commodious church, which is

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much frequented on account of the scholars of Christ's Hospital regularly attending divine service here. Weever, in his *Funeral Monuments*, relates that the old church was honored with the sepulture of four queens, nineteen of the nobility, and thirty-five knights.

Allhallows, Bread Street, 1684.

St. Austin's, or *St. Augustine's*, Watling Street, 1695.

St. Anthony's, Budge Row, built by Cartwright, from designs by Wren, 1682.

St. Mildred's, Bread Street, 1683.

St. Bennet, Gracechurch Street, of which there are records as early as the year 1190, was rebuilt in 1685.

St. Mary, Abchurch Lane, 1686.

St. Mary Magdalen, Old Fish Street, 1685.

St. Matthew, Friday Street, rebuilt 1669. Dr. Lewis Bayly, author of the *Practice of Piety*, and afterwards bishop of Bangor, was rector of this church in 1647.

St. Clement's, East Cheap, 1686.

St. Alban's, Wood Street, was originally founded by Athelstan, the Saxon king, who is said to have resided in a house adjoining, and whose name, somewhat corrupted and abridged, is preserved in Addle Street, formerly called King Adel Street. This church was rebuilt in 1631, destroyed by fire in 1666, and the present edifice, of the Gothic order, erected in 1685. It contains a richly ornamented altar piece, and a pulpit finely carved.

St. Margaret Pattens, Rood Lane, rebuilt in 1687. Some carvings in the altar piece of this church are by the celebrated Grinlin Gibbons.

St. Michael's, Crooked Lane.—This church, which was rebuilt in 1688-98, stands in Miles Lane. Sir William Walworth, who killed Wat Tyler, was buried in this church, to which Walter Warden bequeathed the Boar's Head, East Cheap; the identical house in which Falstaff kept his revels, as recorded by Shakspeare.

St. Margaret, Lothbury, an ancient foundation, rebuilt in 1690. It is a plain but neat church, with a handsome exterior, and a font beautifully ornamented with several historical subjects from the Old and New Testaments.

St. Mary Somerset, Upper Thames Street, first erected about the year 1335, and rebuilt in 1695.

Allhallows, Lombard Street.—A church was standing on this site so early as the year 1053; the present edifice was built in 1694.

St. Andrew's Wardrobe, more frequently called *St. Anne's*, Blackfriars, built in 1692. There is a fine monument to the memory of the Rev. W. Romaine in this church, where he preached for many years. It is allowed to be one of Bacon's best performances.

St. Michael Paternoster Royal, College Hill.—A college was founded here by the celebrated Sir Richard Whittington, which has since been converted into alms-houses, for thirteen poor men. A church was standing here so early as the year 1285. It was rebuilt by Sir Richard, who was interred here, and had a splendid monument, which was violated by the sacrilegious cupidity of a priest, named Mountain, who, disappointed of finding money in the tomb,

carried away the leaden coffin in which the body was enclosed.

QUEEN ANNE'S CHURCHES.—A few of these are entitled to notice, which must, however, be brief, although they embrace some of the most interesting specimens of ecclesiastical architecture, from the time of the fire to the commencement of the nineteenth century.

St. Martin's church, *St. Martin's Lane*, built by James Gibbs, between the year 1721 and 1726, is a beautiful edifice, and is now seen to great advantage by the removal of the closely crowded buildings surrounding it, and formation of Trafalgar-square. The west entrance has a very noble portico of Corinthian columns, the entrance to which is by an ascent of a long flight of steps. This church unites the light and picturesque beauty of the modern temple with the sober grandeur and solidity of Grecian architecture, and the spire is light and elegant. On the 1st of June, 1727, Mr. Volante, an Italian, descended head foremost by a rope, with his legs and arms extended, from the top of the steeple of *St. Martin's church*, over the houses in *St. Martin's Lane*, to the farthest side of the Mews, a distance of about 300 yards in half a minute. The crowd was immense, and the young princesses with several of the nobility were in the mews.

St. Paul's, *Covent Garden*, was erected by Inigo Jones, at the expense of the earl of Bedford, who, in giving his directions, said, 'a barn would do.' 'Then,' said Jones, 'you shall have the most magnificent barn in England.' On the 17th of September, 1795, this church was burnt down, but it was rebuilt according to the plans of Jones. It has a noble massy portico, of the Tuscan order, and the interior boasts of great neatness and simplicity. Butler, the admired author of *Hudibras*, Dr. Wolcot, and a continual succession of the children of Thespis, have been buried in the church-yard.

St. Giles's in the Fields.—This church is built on the site of a hospital, founded by Matilda, wife of Henry I. The present building was erected in 1730, the former edifice having become so ruinous as to render it necessary that the whole should be taken down. Over the north-west gate, leading to the church-yard, there is a representation of the Resurrection finely sculptured, which belonged to the old church. Andrew Marvell, the Yorkshire patriot, Sir Roger L'Estrange, and Richard Pendrell, the preserver of Charles II., are buried in this church or church-yard.

St. George's, *Bloomsbury*.—This church was built by Hawksmoor, the pupil of Sir Christopher Wren, and so closely did he calculate the expense that he only exceeded the estimate by £3. It is a singular, but by no means harmonious, compound of the Tuscan and Corinthian orders, with a good portico in the front. The steeple, which is pyramidal, is surmounted by a statue of George I., a circumstance that has been rather happily alluded to, in an epigram which states, that the pope only made Henry VIII. head of the church, but that king George's good people made him head of the steeple.

St. Mary le Strand.—This church does credit

to the taste and skill of Gibbs, who had just returned from Italy when he was called upon to erect it. Though somewhat thwarted in his original design, and urged by the commissioners for building the fifty new churches to spare no pains in beautifying it, whence he has been lavish of ornament, yet it is a superb edifice. On the proclamation of peace, in 1802, a serious accident occurred at this church, when one of the stone urns, which ornament the railing round the roof, fell and killed three persons, wounding several others.

NEW CHURCHES.—Under the head of new churches we include such as have been erected since the commencement of the present century, and these are sufficiently numerous to have given a character to the architecture of the age, did they not 'have no character at all.'

Within little more than a century and a half three great occasions have occurred to the respective architects of the times—the rebuilding of London after the fire of 1666, when England had an architect worthy of so vast a field—the building of fifty churches in the reign of queen Anne; and the numerous and extensive buildings in the metropolis during the last twenty years.

In the year 1818 a commission was appointed by royal patent, pursuant to a previous act of parliament for building, and promoting the building, of additional churches in populous parishes. The commissioners recommended the erection of several churches and chapels in London and its immediate neighbourhood, and no time was lost in carrying the proposed measure into effect. Previous to the parliamentary commission, a chapel of ease had been erected in the New Road, for the parish of Mary-la-bonne, which was afterwards enlarged and raised to the dignity of a parish church; a tower was substituted for a small cupola, a portico with six Corinthian columns added to its front which was extended, and several other alterations made, under the direction of Mr. Hardwicke the architect. The interior is fitted up with an upper and lower gallery, but it is decorated in a style much too gaudy for a place of worship. Mr. West, the historical painter, presented the church with a very fine picture of the Nativity, for an altar piece.

One of the first, and the largest, as well as the most expensive of the churches erected under the parliamentary commission, was that of *St. Pancras*, which was built at the cost of £70,000, by Mr. Inwood. The exterior is formed in imitation of the temple of Erectheus, at Athens, so far as regards its portico of six Ionic columns. The wings are on the model of the Pandrosium, which was attached to the temple of Erectheus, but they are too profusely ornamented. The eastern end is semicircular—though the original, whence the building purports to be copied, is square. The steeple, which is 165 feet high, is an avowed imitation of the temple of the Winds—with this difference, however, that the Athenian temple had no windows, and only four columns, while that of *St. Pancras* new church has fifteen. The interior of this church is tasteful and elegant; above the communion table are six

splendid antique Scagliola columns, with bases and capitals of white statuary marble. The windows are on the Grecian model, and the pulpit and reading desk are formed of the celebrated Fairlop oak.

If economy in the expense, correctness of design, and elegance of execution, are recommendations in a public building, the church of St. Paul, Shadwell, built in the year 1820, under the direction of Mr. John Walters, would stand at the head of modern edifices, since, although it only cost £14,000, yet the building is simply neat and elegantly chaste. The steeple is peculiarly beautiful; and in correctness of design, and in the simple harmony of its several parts, scarcely yields to the most admired object of the kind in the metropolis. Another church, which boasts some degree of neatness, has been erected at Hackney: it is of the Doric order, with a portico and cupola. The interior is fitted up with taste and simplicity, and the altar of Scagliola marble is elegant, though somewhat too profusely ornamented.

Several other churches have been completed, but they add so little credit to the architects and to the age, that the historian who passes them over will do no injury to the individuals, or to the national taste. It appears by the reports of the commissioners, laid before parliament in the years 1821, 1822, and 1823, that it was intended to build twenty-four new churches in the diocese of London, several of which were in progress.

DISSENTERS' CHAPELS.—In a country where every person may worship his Creator according to the dictates of his own conscience, chapels and meeting houses are necessarily numerous, and increase in proportion to the growth of the metropolis. In London there are six Jewish synagogues, the chief of which is in Duke's place—six meeting houses of the Quakers or Friends; in one of these, in White Hart Court, Gracechurch Street, which was burnt down in 1721, the great founder of the sect, George Fox, as well as the no less celebrated William Penn, preached. There are fifteen Roman Catholic chapels; one of these erected in Moorfields is remarkable for the elegance of its interior. Nineteen Foreign Protestant churches and chapels accommodate those who have embraced the reformed religion, and wish to attend divine worship in their respective languages. In one of these, the Dutch chapel in Austin Friars, several autograph letters of Calvin and other celebrated reformers are preserved.

The chapels of the Whitfieldian and Wesleyan methodists, and the various classes of protestant dissenters, exceed 160 in number, and are continually increasing. Many of these are remarkable for the popularity of the present, or the recollection of former eminent ministers. A building in Zoar Street, Borough, now used as a national school-room, is the place where John Bunyan preached, when in town; and such was his celebrity, that a few hours notice was sufficient to fill the chapel when he mounted the pulpit, even at seven o'clock in the dark mornings of winter. The chapel in Bury Street, St. Mary Axe, was the place where Dr.

Watts officiated; and New Court meeting, in Carey Street, among other distinguished pastors, has had the eccentric nonconformist Daniel Burgess, who preached with an hour glass by his side, and his no less celebrated or eccentric successor, Thomas Bradbury. The methodist chapel in the City Road was erected by John Wesley; and the Tabernacle, at a short distance from it, was built by George Whitfield. Here these celebrated and pious men promulgated their respective tenets, with the zeal of apostles, and the confidence of martyrs. Providence chapel Gray's Inn Lane, was built by the well-known William Huntington. This singular man, in a sermon which he preached soon after the destruction of Drury Lane and Covent Garden theatres in 1808 or 1809, congratulated his audience that 'two of the devil's temples had been burnt down;' when, a few weeks after, his own chapel fell a prey to the flames. He was soon, however, enabled by subscription to build a much larger edifice in Gray's Inn Lane. Simplicity and neatness are the general characteristics of the dissenting chapels.

We now come to the chief specimens of civil and municipal architecture, and here the *Mansion House*, as the abode of supreme city authority, takes the lead. It was not until July 1734 that the common council came to the resolution of appropriating the fines, paid into the chamber for not serving the office of sheriff, to the purpose of erecting a suitable mansion house, for the special use of the lord mayor for the time being. At this period there was not less than £18,000 in the chamberlain's hands, which had been derived in this easy way; and it was ordered, that this sum should in the mean time be invested in the three per cent. annuities, and that the growing interest thereon should be added to the capital every year, till the money was required for the proposed building. Previously to this, his own mansion, or the hall of some of the large companies hired for the purpose, was the residence of his lordship.

The site fixed upon was that anciently occupied by the stocks market, a structure for which the city was indebted to the liberality of Henry de Walleis, who was lord mayor from 1281 to 1285. It had been selected as a market place, because of its being in the midst of the city; and was now on the same account thought the best site that could be chosen for the residence of the chief magistrate. Although the corner stone was laid on the 25th of October, 1739, the building was not completed till the year 1753, in the mayoralty of Sir Crisp Gascoyne, who was the first chief magistrate that made it his residence. This delay was principally occasioned by its being found necessary to raise the whole structure upon piles. The total expense of the erection, including the purchase money of the old buildings, was £42,638 18s. 8d.

The mansion house, built from a design by Mr. George Dance, is a spacious and stately edifice, of rather heavy aspect. A bold flight of steps leads to a fine portico in front, composed of Corinthian columns, which spring lightly from a massy rustic basement, and are surmounted by a pediment; the tympanum of which exhibits a

piece of sculpture in alto relievo, by Taylor, emblematic of the dignity and opulence of the city of London. The general body of the building presents two tiers of lofty windows, and over these an attic story surmounted by a balustrade; the cornices are rich and deep, and supported by Corinthian pilasters. Were nothing more presented to the eye than the parts we have now described, the edifice, though lowly situated and too closely surrounded with buildings, could not fail to be pronounced elegant and complete; but, viewing it from the front, we behold, heaped as it were on the roof, and stretching crossways along the front, an ark-like pile of building, which throws an air of clumsy incongruity over the whole. Originally, there was a corresponding erection or hump towards the back of the building, but it was taken down a few years ago. Its companion cannot follow it too soon.

The interior is laid out with taste and judgment. Entering by the great door, you pass through a spacious saloon into what is called the Egyptian hall (for what reason, however, it would require Egyptian cunning to divine, for there is nothing of that character about it), a magnificent banqueting room, about ninety feet long from east to west (occupying the entire width of the house), and sixty broad, with a lofty concave roof displayed into compartments and richly ornamented. At the sides of the saloon there are also a justice room, a sword bearer's room, and a very handsome room called Wilkes's parlour. The area above the roof of the Egyptian hall being left open, the apartments of the upper stories form a surrounding quadrangle, with galleries of communication. The principal of these apartments are the hall room, which is about the same length as the Egyptian hall, but considerably narrower; a withdrawing room, and chief bed room provided with a splendid state bed.

The *Guildhall*, or common hall of the corporation, is situated at the upper end of King Street, Cheapside.

In 1411, during the mayoralty of Sir Thomas Knolles, the foundation of this edifice was laid; but only the great hall was at that time completed. Other parts of the building were added at subsequent periods of the fifteenth and sixteenth centuries, as the liberality of companies or individuals induced them to advance the means. At the great fire of 1666 the whole of the interior and outer offices were destroyed; but the walls were of such remarkable solidity, that they survived the fury of the raging element. The renovation of the interior was completed within three years after the fire, and at an expense of not more than £3000. It underwent a considerable repair about the beginning of the eighteenth century; again in 1780, when it received its present façade, and lastly in 1814.

The ancient front of the building appears, from the accounts and drawings of it, to have been in a style of considerable richness and grandeur. Some traces of its style may yet be seen in the interior of the present porch, the only part that has been preserved in its ancient state. The old front was ornamented by some remarkably fine statues. Engravings of some of them

may be consulted in Carter's *Ancient Sculpture and Painting*.

The present façade exhibits a tasteless jumble of the pointed, Grecian, and Oriental styles of architecture; parts multiplied to infinitude, and combined without the least relationship. On a pannel over the porch are the arms of the city (as represented in our first page), with the motto beneath them, *Domine Dirige Nos*, as suitable an inscription for a place of popular deliberation as could have been well selected.

The porch conducts us into what is called the great hall. It is 154 feet in length, and fifty-two in breadth; two magnificent windows of painted glass, at the east and west ends, diffuse over the whole a strong but mellowed light; and on each side are clusters of tall columns with gorgeous capitals, surmounted by a corresponding range of double piers, supporting a roof fifty-five feet high. From 6000 to 7000 persons may be contained within this hall, and on some important occasions the numbers we have seen assembled in it could not be less. The floor is of stone, furnished originally by the executors of the celebrated Whittington. The roof is supposed, with great probability, to have consisted, previously to the fire, of open-worked timber, similar to the roof of Westminster hall; it is now flat, and divided into large pannels.

At the east end of the hall there is an enclosed platform several feet higher than the pavement, and surrounded with a pannelled wainscoting, which is set apart for the accommodation of the lord mayor, aldermen, sheriffs, and other principal members of the corporation, at the meetings of the livery, and serves as a hustings at all elections. The more the great window over this platform is examined, the more it will be found deserving of admiration. Its divisions and subdivisions are all in the best harmony; their ornamental garniture light and elegant. In the compartments of painted glass there are well executed representations of the royal arms and supporters, and the stars and jewels of the Orders of the Garter, Bath, Thistle and St. Patrick.

Passing down the hall, the attention is attracted to a number of statues and pictures which occupy the spaces between the clusters of columns on each side, and call many interesting and appropriate recollections to the mind.

The first is a monument to the memory of the celebrated Beckford, who was lord mayor in 1763, and 1770. This magistrate is represented in the erect attitude in which he addressed to the king his celebrated reply, now known to have been written by Mr. Horne Tooke.

In another compartment, on the same side of the hall, is a still more splendid monument, to the memory of the earl of Chatham: executed by Bacon, who was paid the very handsome sum of 3000 guineas for his labor.

The sculptor has shown a remarkable degree of judgment in presenting us with a monumental groupe, which contradicts, as far as it possibly can, the notions of political economy conveyed by the inscription. The illustrious senator is exhibited in a Roman costume, standing upon a rock; his left hand rests on the helm of state; his right is energetically placed on the shoulder

of Commerce, who is presented to his protection by a female, whose mural crown bespeaks her the representative of the city of London; Britannia, reposing on her lion, occupies the foreground, and near her are four infants, emblematic of the four quarters of the world, pouring into her lap the cornucopia of Plenty. No demons, nor furies, nor dogs of war, figure here; four infants denote, as truly as expressively, that it is by peace and amity among all the nations of the earth that the horn of plenty is most certain of pouring its treasures into the lap of England.

Opposite to lord Chatham's monument, on the other side of the hall, is one to the memory of his son William Pitt, by Bubb; the sculpture not so good, the inscription better. The attitude of Mr. Pitt is appropriately oratorical; but, viewed with relation to the surrounding objects, it is an abstract conception, not well harmonized. From the turn given to the head, the face of the son seems as if purposely averted from that of his sire, which frowns on him from the opposite side in all its characteristic sternness.

At the lower end of the hall, on the north side, there is a monumental trophy to the immortal Nelson:—a huge heap of allegory, with a small profile of the great hero in the middle; only rescued from contempt by the admirable inscription from the pen of Richard Brinsley Sheridan.

We come now to the statues of those two high and renowned personages, Gog and Magog, which are situated at the foot of the hall, at the sides of the great western window. Each measures above fourteen feet high; and, being elevated on an octagon stone column, presents a right gigantic appearance. Which is Gog and which Magog, antiquarians have not yet been able to determine, though many and indefatigable their researches into this curious matter have been. The points of similarity between them, however, are so numerous, that we presume no great injustice can be done to either, should he chance to be called by his brother's name. Both are very huge and mishapen; have their brows encircled with wreaths of laurel, and their feet bound in sandals; they have long flowing beards, and still longer flowing sashes; both have been alike indebted to the bedauber of pink and blue, and green and yellow; each has a spear or pole in his hand, and a sword by his side; nor could any thing be more kin-like than the pensive dignity with which they look down on the emmet gazers beneath them. Who these worthies were, and why statues of them should have been placed in the Guildhall of the corporation of London, are two points about which the learned have long been divided in opinion. The author of a curious little work in 2 vols. 64mo., entitled, *The Gigantic History of the two famous Giants in Guildhall, London, 1741* (third edition), following the most respected authorities, assures us, that one represents Corinæus, a giant of Trojan descent, who came over with Brutus, the great grandson of Eneas, and won this country from the hands of

trance into London, these giants figured conspicuously in the pageant exhibited on the occasion at London Bridge; and they have occasionally travelled before or behind a royal or civic dignity since. Mr. Hone, whose researches have thrown much light on the history of these ancient relics, assures us, from personal examination, that 'they are made of wood, and hollow within, but too substantially built for the purpose of being [often] either carried or drawn, or any way exhibited in a pageant.' The construction of them he has also pretty clearly traced to the year 1707, and to a train-band captain of the city, of the name of Saunders, who received £70 for the pair.

In 1706 queen Anne made a present to the city, to be put up in this hall, of twenty-six standards, sixty-three colors, and a kettle-drum, all trophies of the memorable victory of Ramillies: but these have all disappeared. 'Had any other than a cobweb sweeper decided their fate,' says a spirited writer, 'not one of them would have been removed while a single tatter remained.'

Opposite to the porch of this hall there is a flight of steps which leads to a number of separate chambers, appropriated to the lord mayor and aldermen, the common council, the courts of the lord mayor and common pleas, the court of king's bench, and the chamberlain. The common council court is well worthy of a particular visit.

Somerset House, in the Strand, is the most spacious and the most elegant building in the metropolis, appropriated to public offices. It occupies the site of an extensive palace, which was erected about the year 1549, by Edward Seymour, duke of Somerset, who despoiled several churches and chapels in order to furnish materials for the structure.

This palace was occasionally occupied by queen Elizabeth, Anne of Denmark queen of James I., the consort of Charles II., and several queens dowager; and it has also sometimes been appropriated as a residence for foreign ambassadors. It appears to have been splendidly fitted up and furnished, for the period, and even when the building was taken down, about half a century ago, many vestiges of a royal residence were found. The original palace had received considerable additions by Inigo Jones, but even these were compelled to give way to modern improvement, when, in 1774, it was determined to erect a large suite of government offices on this spot. Sir William Chambers was selected as the architect, and although the economical spirit of the government, rather than the want of money, when it was undertaken, prevented him from completing his design, yet the building is such as to do credit to himself, and to the age in which he lived. It consists of a spacious quadrangle; the south front, on the banks of the river, has a very fine terrace, raised fifty feet above the bed of the river, and fifty feet broad, on arches of massive rustic work; the centre arch, or water-gate, is ornamented with a colossal mask of the Thames in alto relievo. The whole building is nearly 800 feet long, and 340 feet wide; the quadrangular court is 340 feet long, and 210 feet wide. The north and south fronts of the

Those mightie people born of giants' brood,
That did possess this ocean-bounded land;
and the other Gogmagog, the last of the British giants. When Philip and Mary made their ca-

quadrangle are formed by massive buildings of rustic work. The centre of the south side is ornamented with an arcade of four columns, with two pilasters on each side; on the columns rests a pediment, in the tympanum of which is a basso relievo, representing the arms of the royal navy, supported by a sea nymph. On the corners of the pediments are military trophies, and above the columns are very elegant vases. The east and west are nearly similar, but not so profusely ornamented. The front in the Strand is only 135 feet long. It consists of a rustic basement, formed of nine arches, three of which in the centre, are open, and form the entrance into the quadrangle. The three arches on each side of the entrance are filled with windows of the Doric order, and adorned with pilasters, pediments, and entablatures. On the key-stones of the arches, Ocean, and eight of his principal tributary streams, are exhibited in emblematic masks, in alto relievo. The basement is surmounted by ten lofty Corinthian columns (comprising two floors) on pedestals, with regular entablatures; the lower windows are surrounded with plain architraves, but the upper ones have a balustrade in front, and are ornamented with Ionic pillars, pediments, and entablatures. The three central windows have large tablets, covering part of the architrave and frieze, on which, in basso relievo, are medallions of their late majesties, as well as of their son, our present sovereign. The attic extends over three intercolumniations, and is divided into three parts by four colossal statues, placed over the columns of the order, emblematic of Justice, Truth, Valor, and Moderation. The whole is surmounted with a group, consisting of the arms of the British Empire, supported on one side by the genius of England, and on the other by Fame. The vestibule, which forms the only entrance, is closed at night by iron gates. It is decorated with columns of the Doric order. Over the side doors in the vestibule, leading to the Royal Academy and the Society of Antiquaries, are two busts, Ly Walton: that over the academy entrance represents Michael Angelo Buonarrotti, and the other is a bust of Sir Isaac Newton.

The principal public office in Somerset House is that of the receiver-general for stamps, one of the least oppressive and most prolific sources of revenue, yielding upwards of £6,000,000 annually. Here also are the tax and navy offices, the offices for the lottery, the duchy of Cornwall, the privy seal, the surveyor of crown lands, the victualling office, the signet office, and several others, in which several hundreds of clerks are employed.

We now conduct the reader to the *Royal Exchange*.—The place where the merchants of London commonly met for the transaction of business, for some centuries, was in Lombard Street, in which the Lombard Jews, from whom the street derives its name, and who were originally the bankers of all Europe, resided. Here too they probably kept their benches or banks.

At length, in 1534, Sir Richard Gresham (for Pennant is more than partial in giving the honor of the suggestion to his countryman, Clough), who was agent for Henry VIII., at Antwerp, and

had been much struck with the advantages attending the bourse or exchange of that place, prevailed with his royal master to send a letter to the mayor and commonalty of London, recommending to them to erect a similar building on part of their manor of Leadenhall. The court of common council, however, were of opinion that such a removal of the seat of business would be impracticable, and the scheme was therefore dropped.

Sir Richard was succeeded in the Antwerp agency, and in his public spirit, by his son, Sir Thomas Gresham, who, in 1564, proposed to the corporation, that, if they would procure a central and commodious site for an exchange, he would himself be at the cost of its erection. The corporation met the proposal in a spirit of equal liberality, and immediately purchased eighty houses, forming two little alleys leading from Cornhill into Threadneedle Street, which they pulled down, and then assigned the space on which they stood to Sir Thomas, for the erection of his proposed exchange.

On the 7th of June, 1566, the foundation of this edifice was laid, and with such activity did Sir Thomas proceed, that it was wholly completed before the November of the following year.

About two years after the building had been opened queen Elizabeth signified her intention of paying it a visit; but so many of the shops still remained unoccupied, that Sir Thomas found it necessary, two days before the promised visit, to go round among the shop-keepers, and beseech them 'to furnish and adorn with wares and wax lights as many shoppes as they either could or would, and they should have all those so furnished rent free for that year.'—Stowe. Her majesty was so much pleased at the appearance of the edifice, that she commanded that instead of the foreign name bourse, by which the citizens had begun to call it, it should be styled in plain English *The Royal Exchange*.

With those enlightened and humane views which the mercantile profession is known so often to inspire, Gresham now determined that whatever revenue might arise from the establishment should be devoted to the support of a free literary institution, to be denominated *Gresham College*, and to the sick and poor of the city. He executed a deed, by which he assigned for ever to the corporation of London and the Mercers' Company, in a joint trust, a dwelling-house which he possessed in Broad Street, for the accommodation of seven gratis lectures on divinity, astronomy, geometry, music, law, medicine, and rhetoric; and the whole produce of the Exchange buildings, for the payment, in the first place, of the salaries of the lecturers and other expenses of the college; and, secondly, of certain annual sums to different hospitals, prisons, and almshouses.

In the great fire of 1666 the *Royal Exchange* was among the many proud fabrics which that calamity reduced to ashes. 'What quick work,' says an eye-witness (the Rev. Samuel Rolle), can sin and fire make! How did that strong building vanish as of a sudden, as if it had been but an apparition! How quickly was it taken down, as if it had been but a slight tent, the

cords whereof are presently loosened, and the stakes removed. So fell that noble structure condemned by craft and covetousness, and overlaid with pride and prodigality.

When this lamentable disaster took place, the funds in the hands of Sir Thomas Gresham's trustees amounted to no more than £234 8s. 2d.; but, with a spirit beyond all praise, they resolved on making up from their own resources whatever might be the sum of money necessary for rebuilding the Exchange, in a style which might do honor to the age, and still farther honor to the name of Gresham. The king gave his cordial co-operation to the undertaking; and by an exertion of the royal authority, which deserves no place among the sins of the house of Stuart, so controlled the erection of new houses on the contiguous grounds, as to enable the trustees to give to the approaches of the new exchange a breadth and openness which the original one by no means possessed. His majesty, his brother the duke of York (afterwards James II.), and prince Rupert, went personally at different times and laid the foundation stones of the principal pillars of the building.

On the 28th of September, 1669, it was finally completed, and opened to the merchants, who had in the interval been accommodated with Gresham College as a place of meeting. The total cost of the building was £58,962, which the city corporation and the Mercers' Company defrayed equally between them. In the front of the building, immediately over the grand entrance, the following inscription commemorates the events we have been relating:—

HOC GRESHAMII PERISTYLIIUM,
GENTIUM COMMERCII SACRUM,
FLAMMIS EXTINGUIT, 1666.
AUGUSTUS E CINERE RESURREXIT, 1669,
WILLM^o TURNERO, MILITE, PRÆTORE.

The plan of the new exchange is similar to that of the ancient one; and both took that of Antwerp for their model. An open area, 144 feet long by 117 broad, is enclosed by a quadrangle of lofty stone buildings, with a broad piazza inside and outside, except on the east and west sides of the exterior. The principal entrance is by an arched gateway at Cornhill, of magnificent proportions, and surmounted by a tower, 178 feet high, which has a clock in the middle story, and terminates in a cupola and globe with a gilt grasshopper (the crest of the Gresham family) as a vane. On the north or opposite side of the quadrangle there is another arched gateway of nearly equal dimensions. The interior area is neatly paved with small square Turkey stones, said to have been the gift of a Turkey merchant; and is divided, as well as the surrounding piazza, into what are called walks, to each of which the merchants of some particular nation, or branch of business, are in the habit of resorting, so that, though all the world may be said to meet on the exchange of London, you may always know where to find, at once, the person with whom you have business to transact.

In the centre of the area there is a good statue of Charles II. by Spiller, set up in place of a former one by Quellin of Antwerp; and in

niches of the surrounding buildings there are statues of most of our other monarchs from the time of Edward I. to George III. The statues of all the earlier sovereigns, as far as Charles II., are from the chisel of Gabriel Cibber; those of George I. and II. were done by Rysbrach, and that of George III. by Wilton. Some have been much injured by time; and whatever merit any of them may possess, as pieces of sculpture, it is sadly obscured by the sable shrouds in which our sea-coal atmosphere has enveloped them. In two niches under the piazza there are statues of the great founder of the building, Sir Thomas Gresham, and of Sir John Barnard, another eminent citizen, whose merit as a merchant, a magistrate, and a faithful representative of the city in parliament, his fellow citizens have thus sought to commemorate.

The interior of the exchange buildings, both above and below, was originally intended to be occupied as a bazaar, and it was so for a considerable period. The piazzas, both on the inside and outside, were lined with shops, and so also was the upper gallery. 'Robin Conscience,' in his progress through court, city, and country, 1683, tells us that after visiting the merchants on the area, where he got much abused for intruding himself, he

Did walk upstairs, where on a row,
Brave shops of ware did make a show,
Most sumptuous.

The whole of the shops have now, however, been entirely removed, except those of the exterior basement of the quadrangle. The upper part of the buildings, to which there is access by two spacious flights of steps under the north and south fronts, are occupied by different public companies, such as Lloyd's, the Royal Exchange Assurance, Merchant Seamen's, &c., and by private merchants and underwriters of respectability. The architecture of the exchange is of a mixed character; it is chiefly of the Corinthian order, and therefore not without considerable elegance; but the taste for ornament, which led to its adoption, has in many parts of the building run into profusion. The interior area is open to the public from eight in the morning till four in the afternoon, at which time precisely the gates are shut.

The Bank of England. For the origin of this all-important establishment, see our article *BANK*. The business of the bank of England was carried on at Grocers' Hall until the year 1734, although the increase of the establishment had long rendered larger premises desirable. At length, in 1732, it was determined to erect a new building of sufficient magnitude, and the site chosen was the house and garden of Sir John Houblon, the first governor of the company, in Threadneedle Street. The original building has since received so many additions, that it becomes more difficult to trace the architectural than the commercial growth of the establishment. The first edifice, which formed but a small portion of the vast fabric which now constitutes the bank of England, was raised under the direction, and according to the designs, of Mr. George Sampson, and was opened for business on the 1st of June, 1734.

This building was soon found insufficient for the increasing business of the company; and, some adjoining houses and ground having been obtained, wings were added under the direction of Sir Robert Taylor. In 1788 Mr. Soane succeeded as architect to the bank, and to him is the present building indebted for its principal ornaments, particularly the rotunda. He has recently added what may justly be considered the most splendid portion of this noble edifice. This consists of a new wing at the east end of the bank; the elevation forms a colonnade of six fluted Corinthian columns, which connect two pavilions; the columns do not form a portico, being barely insulated from the wall. The entablature, which is surmounted with a very fine parapet, has its frieze enriched with Vitruvian fret. The whole possesses much novelty, boldness, and elegant effect. The building altogether occupies an area of nearly four acres. The centre of the south front, erected by Sampson, is eighty feet long, and is of the Ionic order. The two wings added by Sir Robert Taylor were copied from a building by Bramante in the Belvidere gardens at Rome, and, although neat, did not harmonize with the centre. The north and west fronts have been erected by Mr. Soane, who in this, as well as in several other parts of the bank, has indulged in his favorite attachment to the Grecian architecture, which he has introduced in the purest style.

It is, however, in the interior of the bank that the skill of the architect is displayed to the greatest advantage. The rotunda, where the money-changers daily assemble to traffic in real or fictitious stock, is a fine octagonal room, fifty-seven feet in diameter, and covered by a dome; the whole building being of stone. It was erected in 1795, under the direction of Mr. Soane. The court-room, the pay-hall, the offices for the several kinds of stock, the hall, the apartments for the accommodation of the governor, the directors, and the cashiers, with the various offices requisite for the accommodation of 1100 clerks, who are now employed in the bank, are all admirably suited for the purposes for which they are constructed, and nothing can exceed the order and regularity with which the business is conducted.

Over the hall of the bank there is a curious clock, which, by communicating rods, indicates the march of time in sixteen distinct offices, where dial plates are placed; thus obviating the inconvenience which might arise in the transacting of business in the funds by the variation of different clocks. The affairs of the bank are managed by a governor, deputy-governor, and twenty-four directors, who are chosen annually.

The *Stock Exchange* is in Capel Court, once the residence of Sir William Capel, lord mayor in 1504. The first stone of this edifice was laid on the 18th of May, 1801, and the funds were raised by subscription: the plate which has been placed in the first stone bears an inscription, which after ages may consider as a questionable proof of national prosperity. Of national good faith it is certainly an indisputable memorial. It states that the public funded debt was then upwards of £500,000,000. There is nothing in the

building itself to excite particular attention, although it is conveniently and handsomely fitted up; but there is no place in the world where money transactions are carried on to such an extent: an assertion which will scarcely be doubted by those who consider the fluctuations which must occur in a funded property of £800,000,000 sterling.

In the stock exchange great pains are taken to exclude improper persons; and no one is allowed to transact business unless admitted a member by ballot. Four days a week the commissioners for the redemption of the national debt attend to purchase stock.

A singular custom, worthy only of the cupidity and intolerance of a barbarous age, is connected with this house. The number of Jew brokers admitted is limited to twelve, and these only on condition of purchasing the privilege by a liberal gratuity to the lord mayor for the time being. During the mayoralty of Wilkes, one of the Jew brokers was taken seriously ill, and his lordship is said to have calculated pretty openly on the advantage he would derive from filling up the expected vacancy. The son of the broker, meeting the lord mayor, reproached him with wishing his father's death. 'My dear fellow,' said Wilkes, with that sarcastic humor which was peculiar to him, 'you are completely in error, for I would rather all the Jew-brokers were dead than your father.'

Lloyd's Coffee-House is over the northern piazza of the royal exchange, and is the centre of British commerce—the point where it concentrates, and whence it diverges over the globe. A bank post-bill does not obtain a readier currency than an article of intelligence from Lloyd's, and to name this house as an authority is quite decisive with every person who knows the means of information it possesses, and its accuracy. It is also the great mart for maritime insurance.

The East India House is in Leadenhall Street, and here the directors hold their courts, and the chief business of the Company is transacted. It is a spacious building, a portion of which was built in 1726, but was not enlarged to its present dimensions until the year 1799. It cannot boast of much architectural neatness, although the front is crowded with ornaments. It consists of a portico, with six fluted Ionic columns, and two wings; the latter, which are extremely plain, are surmounted by a neat balustrade. The interior is fitted up in a manner which combines elegance and convenience: several of the rooms are very spacious. The museum is rich in oriental curiosities, as the library is in Asiatic literature: in the former are numerous trophies of British conquests in India. The library is frequently visited by oriental scholars from the continent, who are admitted by the directors with a liberality and a facility that shows a strong contrast to the unbending obstinacy with which public buildings are too frequently closed to the public in the metropolis.

The Post Office.—Posts appear to have been established in England so early as the reign of Richard III., but they must then have been an object of comparatively little importance; and the first mention we find of a post-master, in

England, is in the year 1581, when Sir Thomas Randolph, an able diplomatist, who had been employed in no less than eighteen distinct embassies, filled the office. On the union of Scotland with England, in 1710, a general post-office was established by act of parliament, which included not only Great Britain and Ireland, but our West Indian and American colonies. This extension increased the revenue of the post-office to £111,461.

The most remarkable event in the history of the post-office is the plan first suggested by Mr. Palmer, in 1784, of sending the letters by the coaches, instead of the old custom of transmitting them by post-boys on horseback. From this moment the prosperity of the post-office commenced; and the revenue which, after the progress of nearly two centuries, in 1783 only produced £146,400 annually, thirty years afterwards yielded a net revenue of nearly £1,700,000. Nor was it only in increasing the revenue that Mr. Palmer's plan was beneficial; for, to use the words of the parliamentary committee on the subject, 'at the same time that the revenue is augmented, answers are returned to letters in half the time, and with a degree of punctuality never experienced before: the expense is at a less rate per mile than upon the old plan; and, when the plan had been so far carried into effect that the mail-coaches had travelled above 40,000,000 of miles, 'not a single robbery had been committed, or a passenger insulted.'

The post-office consists of three branches; the general or inland, the foreign, and the two-penny post-offices. The general post-office is necessarily the most extensive and the most important, and some idea may be formed of the number of letters that pass through it, when it is known that the amount of postage on the letters delivered in London from this office sometimes exceeds £2500 in a single morning. Numerous as the letters are, such is the admirable arrangement that the whole business of the day is done in about six hours. On the day that a committee of the house of commons attended at the general post-office, to examine the details of the business, the number of letters amounted to 44,000, the whole of which were sorted and charged, by 105 persons, in the space of forty-five minutes. As auxiliaries to the general post-office, there are sixty receiving-houses, which are kept open until five o'clock every day.

The business of the foreign post-office, the inland letter-carrier's office for newspapers, and the ship letter-office in Abchurch Lane, is conducted in a similar manner, with a difference as to the days on which letters are made up, and the hours of attendance, as on foreign post days the office is open for receiving letters until twelve o'clock at night.

The two principal offices for the two-penny post are in St. Martin's-le-grand and Gerard Street; there are also upwards of 120 receiving-houses in various parts of the metropolis, which are continually adding to their number as new buildings are erected. The number of letters circulating in a population of 1,250,000 may readily be conceived to be immense; but there is one day in the year in which they are increased beyond any

thing that imagination could calculate—this is St. Valentine's-day; it appears by the official returns, that on the 14th of February, 1821, the number of letters which passed through the two-penny post-office in London exceeded the usual daily average by 200,000!

The late situation of the general post office in Lombard Street, though possessing the advantage of being in a central situation, was inconvenient for business so extensive; and more than ten years ago it was determined to erect a new office on a larger scale, and more worthy of this great city, on the site of St. Martin's-le-Grand. The first money raised was expended in purchasing the leases of the houses, and, for some time after they were removed, the ground remained unoccupied. The edifice is now completed; and, for purity of architectural design, may vie with the finest specimens in the Greek school.

The *Excise Office*, established in 1643, was formerly kept in the Old Jewry, and afterwards transferred to Broad Street, where a spacious and plain, but by no means inelegant building, was erected on the site of Gresham College and alms-houses in the year 1768. In this office the superior and local business of the excise is transacted by nine commissioners, with numerous officers and clerks under them. The gross amount of the excise in the year 1820 was £31,714,935 10s. 9d., of which a sum of £3,992,687 0s. 6½d. was paid in drawbacks, discount, and charges of management, leaving a net revenue to the country of £28,622,248 10s. 2½d.

The *Mint* is a very elegant building of modern date, which has been erected on Tower Hill, for the purpose of coining and issuing all monies, so necessary to the commercial intercourse of every civilised nation.

The business is conducted by a master and worker, who has a salary of £3000 a year, a deputy master and worker, comptrollers, assay masters, and a number of other officers, whose aggregate salaries, including that of the master, amount to upwards of £12,000 a year. The salaries of the officers, which are now liberal, were formerly very low, making every allowance for the times: in the reigns of Henry III., and Edward III., the warden's salary was two shillings a day; in the reign of Henry VI. it was only two shillings and sixpence, and the engraver had only £20 a year; now the warden has upward of £400, and the engraver £500 per annum.

The new mint on Tower Hill, designed by Mr. Smirke, and erected under his directions, is one of the most elegant structures in the eastern division of the metropolis. The building is of pure Grecian architecture, combining a modest grandeur with the convenience of being admirably suited to business. In the interior the arrangements are so complete as to exhibit one of the most remarkable proofs of the advanced state of the fine and mechanical arts to be met with in any part of the kingdom.

Corn Exchange.—The business of a corn broker, or factor, is one of modern growth and doubtful utility. Formerly the farmers of Kent and Essex used to send their grain up the river,

and attend a sort of market at Bear Quay; but, about the middle of the last century, when grain was cheap, the farmers often returned home without selling their grain. Those from Essex chiefly used the Bull Inn, Whitechapel; and the landlord, who was of an enterprising spirit, proposed that the samples, with the prices, should be left with him, in order that he might try to dispose of the grain in their absence. This man, whose name was Johnson, and who was originally the boots of the inn, soon got so much business in this way, that he opened an office at Bear Quay as a corn-factor, and amassed a fortune. The business of corn-factors afterwards increased so much, that they erected a market in Mark Lane, which is called the corn exchange. The building, with which two coffee-houses are connected, is of the Doric order; and the quadrangle, where the samples of grain are exhibited, is capacious. The brokers at first wished to render the corn exchange a private market; but, on an application to parliament, it was thrown open. Auxiliary to this market is a much neater though smaller structure, called the new Exchange for Corn and Seed.

The Coal Exchange.—Coals appear to have been first used in London about the year 1307; but the smoke was supposed to corrupt the air so much, that in 1373 the use of them was prohibited by a royal proclamation: the quantity now consumed is immense, although in the metropolis they are subject to an impost, from which nearly every other part of England is exempt. The first duty on coals was 1s. per chaldron, which was imposed immediately after the great fire, in order to raise wharfs along the river. In 1670 an additional duty of 2s. per chaldron was laid on all coals entering the port of London, for the purpose of rebuilding churches, &c.; and those duties, though for a specific purpose and a limited period, have been increased until they amount to 9s. 4d. per chaldron. Legislative enactments have frequently been deemed necessary in order to regulate the coal trade, and others are still called for. In 1804 it was resolved to erect a regular market for vending coals, and premises in Thames Street were purchased for the purpose, where the present coal exchange, which contains a handsome front and a neat rotunda, was erected. Since the extensive application of steam-engines in factories, and the introduction of gas, the consumption of coals in London has been much increased. In 1801 the quantity imported into the port of London was 884,339 chaldrons; and in 1823 it was nearly double, being 1,437,251, the duty on which amounted to £670,717 2s. 8d.

Garramey's and the *Auction Mart* are other public commercial resorts of immense business, but of little architectural importance.

The Inns of Court are important adjuncts to the metropolis. Fortescue inclines to the opinion, that they were called so at first, not because the persons resident there followed the profession of the law, but simply from their being the inns, hospitals, or hotels, where young men of family and other persons attached to the court were wont to reside.

Among the very ancient inns, of which there is no longer any trace, one called Chester inn is

said to have been situated on the spot where Somerset House now stands; a second at Dowgate; a third in Paternoster Row; and a fourth somewhere still nearer St. Paul's cathedral, which in the days of its profanation was the great place of business for lawyers. Each practitioner had his own pillar in the cathedral, where he took his stand at stated hours of the day, with a pen and paper book, ready to receive the instructions of clients. So perfectly, indeed, was the practice recognised, that on the making of a sergeant, it was usual for the whole body of sergeants to walk in their robes to St. Paul's, to invest their new brother with his particular pillar of business.

The number of these inns of court appears in the reign of Henry III. to have been so much on the increase, that it was thought necessary to restrain them by proclamation. Some which now exist were however erected after this prohibition. The number remaining is thirteen, nine of which are within, and five without the liberties of the city, and all (we believe) extra parochial.

The inns were anciently of three classes; two of these might properly have been designated the outer and inner; the third bore the name of Serjeants' Inn. The outer were called Inns of Chancery, from their being places of elementary instruction, where young men were taught the nature of chancery writs, which were then considered as developing the first principles of law. Such were Clifford's, Thavie's, Barnard's, Staple's, Clement's, Lyon's, New Inn, and some other inns now extinct. In the reign of Henry VI. there were ten of these lesser inns, each of which contained not less than 100 students. When persons had made some progress at these inns, they were then admitted into the superior or inner courts, where they perfected their degrees. Of these courts there were four, namely, the Inner and Middle Temple, Gray's Inn, and Lincoln's Inn, which still retain the pre-eminence they originally possessed. At the period of which we have spoken none of these inns of court had less than 200 members.

The Serjeants' Inns, of which formerly there were three, were of a still higher order than any of the others, being occupied solely by the lawyers who had been advanced to the dignity of the coif, including the judges, who, though promoted to the bench, still style every serjeant their 'brother.' One of these, which was situated about the middle of Fleet Street, was held on a lease from the dean and chapter of York; and on the expiry of the lease it was not thought proper to renew it. The place, though now differently occupied, still retains the name. Another inn, for the use of serjeants only, was situated in Scroop's court, Holborn, near St. Andrew's church. The only Serjeants' Inn, at the present day, is situated at the foot of Chancery Lane.

College of Doctors of Law.—The doctors of the civil, canon, and maritime laws, practising in the ecclesiastical and admiralty courts, have a college of their own, situated in Knight Rider Street, usually called Doctors' Commons, from their communing together in a collegiate manner, as in the inns of court. At first the doctors resided in a mean house near Paternoster Row,

which is now a tavern, known by the name of the Queen's Arms. Afterwards Dr. Henry Harvey, dean of the arches, purchased an old stone structure in Knight Rider Street, held on lease by lord Mountjoy, from the dean and chapter of St. Paul's, and fitted it up for the accommodation of the fraternity. Here they resided till its destruction by the great fire; when they removed to Essex House, which they occupied till 1672, when the present commodious buildings were erected.

As yet, the members, though professionally associated together, were not legally incorporated; nor was it till 1768 that an act for this purpose was obtained.

The college has a handsome hall, where the different courts in which its members officiate hold their sittings. The doctors or advocates sit on the same bench with the judge; and each has a particular seat assigned to him on his admission, which he always keeps.

The principal ecclesiastical court is the *Court of Arches*, said to be so called from its having been anciently held in the crypt of Bow church, which was originally built upon the arches. The thirteen parishes in London, and laie peculiars of the archbishop of Canterbury thale under the immediate jurisdiction of the oing of this court, who is hence styled the *deci are coaches*. The *Prerogative Court* is guardian of the various rights of succession to property. It has a registry attached to it, in which all original wills are deposited: and grants letters of administration to executors and next of kin. The *Office of Faculties and Dispensations* empowers any one to do that which in law he could not otherwise do; as, for instance, to marry without the publication of banns, to succeed a father in an ecclesiastical benefice, &c. The *Court of Delegates* is the highest of all the ecclesiastical courts of the province of Canterbury. Appeals lie to it from any of the other courts, and the decisions are generally considered final. The king has it in his power, indeed, to grant a commission of review under the broad seal, but this is rarely exercised. The *Court of Admiralty* takes cognizance of all offences on the high seas, questions relating to seamen's wages, right of salvage, &c. It was erected in the reign of king Edward III. and was originally held in Southwark. When the causes before it relate to offences committed at sea, it does not hold its sittings here, but at the sessions house in the Old Bailey; and any barrister at common law may then plead before it. The doctors of law have an excellent library attached to their college.

The Rolls.—The master of the rolls is ex officio lord of a liberty of itself, exempt from the power of the sheriff of Middlesex, and of every other officer, except with leave of the master. Here he has a splendid house to reside in, from which he can pass into the court where he officiates, as from one room into another; and behind it there is a large garden, where, in the midst of a crowded city, he may enjoy something of the pleasures of rural retirement. Here also he has a chapel of his own, the minister of which is of his nomination.

The chapel is an ancient structure, of a mixed character, and is supposed to have been designed

by Inigo Jones. It contains several monuments to the memory of persons who have filled the office of master; one by Torregiano, in honor of Dr. Young, who died in 1616, is particularly admired.

In 1717 Sir Joseph Jekyll, on being appointed master, found the houses belonging to the liberty in so ruinous a condition, that he was induced to rebuild no less than thirty-nine of them at his own expense; although, by an act of parliament, the master is restrained from granting leases for a longer period than forty-one years. The cost of these erections was not less than £30,000.

The total amount of the rents of houses in the liberty of the rolls, as charged to the poor rates some years ago, was £7282.

We now turn to the *charitable erections* of this great city. *Institutions.*—In the metropolis there are thirty-nine principal religious societies formed for the purpose of disseminating religious instruction to every nation and to every people. Some idea of the extent of the pious benevolence of England—for, it is proper to acknowledge that the whole sum is not collected in London, though principally so—may be formed from the following statement of the receipts of the religious charities in the year 1822:—

	£	s.	d.
British and Foreign Bible society	97,062	11	9
Society for promoting Christian Knowledge	57,566	19	5
Church Missionary society	35,000	0	0
Wesleyan Missionary society	31,748	0	0
London Missionary society	31,266	1	11
Moravian Missionary society (in London)	2,691	8	3
Home Missionary society	4,311	1	9
Society for the Conversion of Jews	11,400	9	10
Religious Tract society	8,854	9	4
Church of England Tract society	636	8	8
Female Penitentiary society	3,219	4	0
Society for the Relief of Pious Clergymen	2,282	8	2
Prayer Book and Homily society	2,082	9	6
British and Foreign School society	2,053	16	11
Naval and Military Bible society	1,929	2	9
Sunday School Union society	1,746	19	2
Continental society	1,536	7	2
African Institution	1,134	2	1
Society for promoting Religious Knowledge among the Poor	825	15	7
Society for Encouragement of Female Servants	819	18	6
Merchant Seamen's Bible society	648	10	2
Sunday School society	540	4	6
Society for Building Churches and Chapels, total from commencement	61,913	3	10
Ditto, annual subscriptions	630	14	0
Hibernian society	8,984	13	6
Hibernian Bible society	4,343	0	11
Irish Religious Book and Tract society	3,750	7	7
Irish Evangelical society	2,275	2	3
Sunday School society for Ireland	1,883	17	0
Irish Baptist society	1,771	0	0
Irish Society of London	403	6	7
	£385,302	8	7

Nor does this sum, large as it is, include all the money collected for religious charities, as there are various other societies, which, like tributary streams, flow into the ocean of benevolence. In a preceding year some of the institutions produced more money than in the year 1822, particularly the Bible society, the receipts of which, in the year 1821, amounted to £103,802 17s. 1d.

There are twenty-four hospitals for the sick, the lame, for children, for the cure of particular complaints, as diseases of the eye, or the ear, &c.;—numerous alms-houses for the maintenance of the aged, and upwards of thirty dispensaries for the gratuitous supply of medicine and medical aid to the poor, 60,000 of whom are thus annually relieved. In justice to the medical profession it ought also to be said, that not only several apothecaries, but even physicians and surgeons of the highest rank, give advice gratuitously to the poor once or twice a week. Reserving for a distinct notice some of the most prominent of the London charities, it may be necessary to give a cursory view of the beneficial influence and effects of others.

Of all the institutions in London, there is not one more humane or more useful than the *Society for the Discharge and Relief of Persons imprisoned for Small Debts*, which was established in 1772, principally through the means of the unfortunate Dr. Dodd.—Within the first fifteen months after this society was formed, 986 prisoners were liberated through its means; and the number discharged and relieved in 1818, from various prisons in London and the country (for its benefits are not confined to the metropolis), was 1138 persons, who had 823 wives, and 2187 children. The sum with which so much good was achieved is comparatively trifling; the average expense of the liberation of each prisoner, including every incidental expenditure relating to the charity, being only £2 17s. 2½d.

The *Westminster Hospital*, or public infirmary, which was established in 1719, was the first institution of the kind in England, and may be considered as the parent of all the subscription hospitals in the kingdom. Since its formation it has afforded comfort and relief to more than 174,000 of the sick and afflicted poor.

The *City Dispensary*, in Grocers' Hall Court, Poultry, is an institution of the utmost usefulness. Since its establishment, in 1789, 138,302 patients have been admitted. Of these 136,442 have been cured or relieved, 393 discharged for irregularity, and only 1467 died: 50,346 persons have been attended at their own habitations, and several thousands relieved without the formality of a letter of recommendation. The number of persons who receive medical or surgical assistance from this institution, every year, is nearly 5000.

The *National Vaccine Establishment* is another institution of extensive utility; many diseases have their thousands of victims every year, but the small pox had its tens of thousands. What an alteration is there now, not only in the human countenance, but in the aggregate duration of human life, which has been increased more than two-years by vaccination alone! It appears by

the last report of the vaccine establishment, that, within the five years ending in 1823, 34,275 persons have been vaccinated in London; and the total number vaccinated in Great Britain during the same period was 327,521 persons.

The *Royal Humane Society* was instituted in 1774, for the recovery of persons apparently drowned or dead, by diffusing a knowledge of the best means to be resorted to in such cases, and by rewarding with honorary medals such individuals as have exerted themselves to save the life of a fellow creature. One of these medals, which may be compared to the most honorable reward the Romans could bestow—the corona civica,—was given to the emperor Alexander of Russia, who was instrumental in saving the life of a peasant, and who was more honored by this mark of distinction, than if 'stuck o'er with garters and hung round with strings.' The society has twenty receiving houses in the metropolis, where persons are in attendance with the necessary apparatus to be employed. Since the commencement of this establishment, it has been the means of saving the lives of 5500 persons, who were ^{which} ~~apparently~~ dead; and more than 21,000 persons ^{are} ~~have~~ been rewarded for their exertions in saving the lives of others, principally of the shipwreck.

The out similar to that of the Royal Humane Society, have been formed in various parts of Great Britain; and the example is already adopting in most of the nations of Europe.

The *Royal Universal Dispensary for Children*, which is open, in cases of danger, to a first application for relief without recommendation, was instituted in the year 1816; and since that time 60,000 children have been attended, only one in sixty of whom died. Since this dispensary was instituted, the number of children in London, under ten years of age, that have died, is 5000 less than in the preceding seven years.

The *Royal Infirmary for Diseases of the Eye*, though an infant establishment, has preserved the sight of thousands. It appears from the report of this institution, in 1822, that since the opening of the charity in 1805, 32,400 poor persons have received the benefit of the charity: and of this number (which is upwards of 2000 annually) 30,250 have been discharged, cured, and relieved; and 888 deemed incurable. During the same period 1252 operations, for the removal of the cataract, had been performed, 1174 of which terminated successfully, although of this number of cases 122 persons had been born blind.

There are fourteen hospitals in London, expressly appropriated to females during a period, when, of all others, they most require assistance. Some of these are for attending married women, at their own habitations, gratuitously; others for affording them pecuniary relief, or the loan of linen, &c.: and a third class of hospitals is for admitting in-door patients. The *City of London Lying-in Hospital*, in the City Road, which is perhaps the largest of these establishments, was founded in 1750, and Dr. Sherlock was one of its earliest patrons. From this period, to the year 1809, 24 902 poor married women were

assisted, and 25,196 children born within the walls of the hospital. A singular instance of the advantage of having all the departments of a public institution filled with persons duly qualified for their office occurs in the history of this charity.

The *British Lying-in Hospital*, in Brownlow Street, was instituted in 1749, and a remarkable instance of the advancement of medical science is exhibited in the records of this charity. During the first ten years after its establishment one woman in forty-two died; and, in the fifth ten years, only one in 288. In the first ten years one child in every fifteen died, but in the fifth ten years the number of deaths was reduced to one in seventy-seven, and afterwards to one in ninety-two.

The *Strangers' Friend Society* was formed for the purpose of relieving the distressed. The principles on which this truly charitable institution is founded are the most benevolent and disinterested. Neither country nor religion is considered as an obstacle to its relief; and, in carrying on this work of mercy, 300 visitors are employed 'to enquire the wretched out,' whether living in garrets or cellars, and well do they discharge this painful and laborious duty, without any other reward than that which arises from the consciousness of doing good.

Such are a few of what are considered the minor benevolent institutions of the metropolis—to do justice to their history would require limits much more extensive than we can assign to them.

Alms-Houses.—Independent of the charitable institutions of the several corporate bodies of the city of London, they are the guardians or trustees of several other charities.

There are in London 110 different foundations of alms-houses, in which upwards of 1500 persons of both sexes are comfortably maintained, in a degree of comparative independence. The Drapers' Company, whose charitable donations are upwards of £4000 a year, have alms-houses which contain 113 persons, either founded by themselves, or by individuals who have appointed them guardians; and among the charities, the administration of which is vested in the Drapers' Company, is 'queen Elizabeth's College,' at Greenwich, which was founded for twenty-four persons, in 1576, by William Lambarde, the author of the *Perambulation of Kent*, and is said to be the first hospital which was founded by a protestant. In the parish registry of Greenwich, there is a singular instance of marriage and longevity connected with these alms-houses. It states, that on the 18th of November, 1685, John Cooper, alms-man, in queen Elizabeth's College, aged 108, was married to Margaret Thomas, of Charlton, aged eighty, by leave of the governors of the drapers.

Bridewell Hospital.—The recollection of Mendicity almost involuntarily associates itself with Bridewell, since the latter was one of the first institutions formed with a view to relieve and suppress it. The site on which this hospital is built was anciently occupied by a royal palace, which must have been built long anterior to the time of William the Conqueror, as during the

reign of that monarch it was so much dilapidated that he gave some of its materials towards the rebuilding of St. Paul's. Henry I. despoiled it for the same purpose; but the palace still remained, and was long a royal residence. Cardinal Wolsey, who built as well as occupied royal palaces, resided here in 1552; and, when the emperor Charles announced his intention of visiting England, Henry VIII., with a celerity unusual in those days, had it taken down and rebuilt for that sovereign's reception, in the course of six weeks. For some reason, which is not recorded, his imperial majesty did not reside in the palace, and it was appropriated to the officers of his suite.

Although historians relate that the palace was rebuilt in a magnificent manner, yet this seems doubtful, as in the succeeding reign bishop Ridley, in a letter to Sir William Cecil, secretary to Edward IV., describes it as a wide, large, empty house, 'that would wonderfully well serve to lodge Christ in, if he might find such good friends in the court to procure in his cause.' The pious bishop says, many lie in the streets 'both hungry, naked, and cold,' that the citizens were willing to refresh them, but they lacked lodging; and he adds, as a climax to the misery he paints, that 'in some one house, I dare say, they are fain to lodge three families under one roof!'

The king granted the petition, and the house from that time has been employed 'for the correction and punishment of idle vagrant people, and for setting them to work, that they might, in an honest way, take pains to get their own livelihood.' Bridewell is one of the royal hospitals which Edward VI. endowed with 700 marks of land, formerly belonging to the Savoy, which had been suppressed. It is at present used as a house of correction for the dissolute, as a refuge for the destitute, and as a manufactory for the industrious.

St. Bartholomew's Hospital.—Five hospitals in London are termed royal on account of their having been founded or endowed by English sovereigns; these are St. Bartholomew's, St. Thomas's, Bethlehem, Bridewell, and Christ's Hospital. St. Bartholomew's, in West Smithfield, may claim as a benevolent institution an antiquity of more than seven centuries, it having been originally founded in 1102, by Raherus, who is said to have been a minstrel to Henry I. and established a priory of black canons near it. The endowment which was for 'brethren and sisters, sick persons, and pregnant women,' was £305, and it received several additional bequests, which were given previous to the time of Henry VIII., who, while he suppressed the monastery, preserved the hospital, and gave 500 marks a year to it, on condition that the city should give an equal sum. The citizens repaired the ruinous houses the monarch had bequeathed, at an expense of £1000, and provided the means of receiving 100 persons into the hospital so early as the reign of Edward VI., who incorporated it. The expenses of the hospital at this period amounted to £795 a year; the king's endowment, after the repairs made by the city, produced the 500 marks,—a similar sum was

given by the corporation, and the deficit was raised by the citizens. No sooner did the funds admit of an increase of patients, than it was made so, that in the year 1660 the hospital maintained upwards of 300 sick or lame persons at an expense of £2000 a year. The hospital fortunately escaped the dreadful conflagration of 1660, although several houses constituting a portion of its revenues were destroyed, but they were almost immediately rebuilt by the citizens, and then became more productive than ever. Thus the hospital continued until the year 1730, when it was deemed necessary to rebuild the whole by a subscription raised for the purpose.

The building forms a quadrangle, with an inner court of considerable dimensions. The principal entrance in Smithfield, erected in 1702, is of the Doric order of architecture, and consists of a large arch, surmounted by a statue of its nominal founder, Henry VIII. The royal arms, and two figures representing sickness and lameness, also ornament the front. The interior of the hospital is spacious and well arranged. The hall, which is large, contains several paintings, particularly one, representing St. Bartholomew holding the knife by which he was flayed alive, a portrait of Henry VIII., and another of Dr. Ratcliff, who was a great benefactor to the hospital. The staircase is indebted to the gratuitous pencil of Hogarth, who has enriched it with a picture of the cripple at the pool of Bethesda, and another of the good Samaritan, as well as other paintings, in return for which he was elected a governor. St. Bartholomew's Hospital, which formerly had two auxiliary establishments, in Kingsland Road, and Kent Street, in Southwark, is open to accidents at all times, and there is considerable facility given to the admission of patients, who receive the best medical and surgical advice. The number of in-patients is about 5000, and that of out-patients nearly 6000 annually.

St. Thomas's Hospital, in Southwark, devoted to the same objects as that of St. Bartholomew, under the same government, that of the lord mayor and aldermen, or a select portion of them, owes its royal foundation to the same prince, and extends relief to the same extent; the number of poor admitted as in or out door patients in 1820 being 11,451.

This hospital owes its origin to two similar charities, founded in the early part of the thirteenth century—a hospital built in 1207, by the canons of the priory of St. Mary-over-Rhe, and an almonry or alms-house, erected by Richard Prior of Bermondsey, for the reception of indigent children, and necessitous proselytes. In the year 1538 it was surrendered to the crown; and in 1551, when the mayor and citizens purchased the manor of Southwark of Edward VI. for the sum of £647 2s. 1d., they repaired and enlarged the hospital, so as to render it capable of receiving 260 poor, sick, and helpless objects.

In 1693 it was deemed necessary to rebuild the hospital, which was done in three quadrangles by subscription. The benevolent Thomas Guy built three of the wards at his own expense, and Thomas Frederic, esq., one of the governors,

built three others. Another quadrangular court with several wards and offices, was added in 1732, which increased the number of wards to nineteen, containing nearly 500 beds. Sir Robert Clayton, who was lord mayor in 1680, was a great benefactor to this excellent charity.

Though not honored with the appellation of 'royal,' the foundation of *Guy's Hospital* was an act of more princely liberality than either of the preceding. It is one of the most munificent gifts that an individual ever presented to the public; and although it may be contended, that Guy (see that article), gave his money in public charity out of pique, yet the whole life of this man was such a scene of continued beneficence, that it is fair to presume he would, under any circumstances, have appropriated a considerable portion of his fortune to works of charity. It has been seen by his munificence to St. Thomas's Hospital, that he was an individual by no means of ordinary benevolence; nor was the hospital, which bears his name, an act of posthumous charity, but, on the contrary, erected during his life, at an expense of £18,793 16s. 1d., although he did not live to see it finished. The foundation was laid in 1722, and two years afterwards Mr. Guy died, having endowed the hospital with the vast sum of £219,499 0s. 4d.; he also left a perpetual annuity of £400 a year to Christ's Hospital, and £1000 for discharging such poor prisoners as could be released at an expense of £5, by which above 600 persons were set at liberty; nor was Guy unmindful of the claims of kindred, for he bequeathed annuities for life to them of £870, and legacies to the amount of £75,589. *Guy's Hospital*, which possesses no architectural claims to particular notice, consists of a centre and two wings, which includes thirteen wards. The number of in and out patients admitted annually, varies from between 4000 and 5000.

The governors of the hospital are incorporated, and, by an act passed in the year 1808, it is joined with the royal hospitals, the Foundling, the Universities, and Colleges of Eton, Winchester, and Westminster, in the clause of exemption from the tax on servants.

Bethlem Hospital was not originally in Moorfields, but was formed out of a priory on the site of the street in the ward of Bishopsgate, now called Old Bethlem, built by Simon Fitzmary, a sheriff of London, in the year 1247. Three centuries afterwards, Henry VIII. granted the lands and revenues of the priory to the corporation of London, for the reception and maintenance of lunatics. The number of these unfortunates increasing considerably, a more spacious building became requisite, when the corporation appropriated a plot of ground in Moorfields for the purpose, and a new building was erected in 1676 by subscription, at an expense of £17,000, to which two wings were added in 1733.

The hospital becoming ruinous, and its removal consequently desirable, in order to make the projected improvements in Moorfields, it was determined to erect a more magnificent building for the purpose, on the site of the Dog and Duck Tavern, in George's Fields. The building, which was begun in 1812, and com-

pleted within a short period, is a very magnificent structure, extending, the centre and wings included, to the length of 580 feet in front. The centre has an Ionic portico of six columns; and the building is surmounted by a neat dome. The hospital was designed by Mr. Lewis, and cost upwards of £95,000.

It appears from a return made by the physicians of this hospital to the governor, in January 1822, that the number of patients in the hospital was 346; of whom 210 were deemed curable; seventy-seven incurable, and fifty-nine criminals who were to be confined for life, among whom were Margaret Nicholson and Hadfield, the two individuals who attempted to assassinate his late majesty.

Bethlem Hospital does credit to the talents of the architect, and is an ornament to this part of the metropolis. The two celebrated statues of raving and melancholy madness, by Caius Ciber, which formerly stood on each side of the gates in the hospital in Moorfields, are now placed in the hall.

St. Luke's Hospital.—So early as the year 1731, in consequence of the insufficiency of Bethlem Hospital to contain the lunatics for whom admission was sought, a few benevolent individuals resolved on erecting a new asylum for their accommodation. A house was first built on the north side of Upper Moorfields, and opened for the reception of patients; but it was soon found not to meet the number of deserving applications, and in 1786 a more extensive building was erected at the corner of Old Street, at an expense of £55,000. It is a large and well-built edifice, extending nearly 500 feet in length; and is capable of holding upwards of 300 patients. In the vicinity of London are several private asylums for lunatics, on a larger scale than either Bethlem or St. Luke's; and, although some of them are respectable and well managed, yet there is strong reason to believe that there are others of a very different character. But this subject is at length before a committee of the house of commons.

Foundling Hospital.—In London, the proposal for a foundling hospital, which originated in the reign of queen Anne, and was strongly recommended by Addison, in the *Spectator*, was suffered to slumber for many years; nor was it until the year 1739 that captain Thomas Coram, who spent the whole of his fortune in the benevolent object, on presenting a memorial to his majesty, signed by twenty-one ladies of the first rank, and several noblemen and gentlemen, obtained a royal charter for its incorporation.

As the hospital was to be raised and supported by subscriptions, and a large sum was necessary in order to commence the charity on a scale sufficiently extensive, some time was necessary in order to raise the requisite funds. In 1740 the committee appointed to carry the measure into effect purchased fifty-six acres of land of the earl of Salisbury, on the northern side of Ormond Street, and extending to Gray's Inn, for the trifling sum of £7000: out of which the earl liberally gave £500 to the charity. On the 16th of September, 1742, the first stone of the new building was laid; benefactions continuing to

flow in, a chapel was built, to which Handel gave an organ, and the benefit of his oratorio of the Messiah; and, as he conducted the performance himself, he, in the course of a few years, produced to the charity £6,700.

Liberal as the subscriptions were, they did not keep pace with the demands on the hospital, which, before the end of the year 1752, had received 1040 infants, of whom 559 were then under its protection. Four years afterwards parliament voted a sum of £10,000 in aid of this charity, declaring that the enabling the hospital to receive all the children that should be offered was the only method to render the charity of lasting and general utility. The 2d of June was fixed for the general reception, and on that day 117 children were received; and the number increased so rapidly, that, before the 31st of December in the following year, the number amounted to 5510, and in 1760 to 6000. The indiscriminate admission of children, under a certain age, was found attended by an evil consequence, and in 1760 the law which authorised it was repealed.

Parliamentary aid still continued to be given to the hospital, until the improvement of its revenues, by letting ground on building leases, no longer rendered this necessary. The annual receipts of the hospital now amount to upwards of £13,000 a year, a sum which is considered as sufficient to maintain 500 children.

The foundling hospital is built of brick, and consists of two wings, with a chapel in the centre; the gardens and playground for the children are very large, and the situation is altogether as healthy as could be found in the heart of so large and so populous a city as London.

The Asylum, and London Orphan Asylum.—The foundling hospital is limited to the reception of infants—the asylum for female orphans at Lambeth, and the London orphan asylum for boys and girls, have been founded for the reception of destitute children, who are admitted at a more advanced age. Those of the Lambeth asylum, which originated with Sir John Fielding, between the age of nine and twelve; and, at the London orphan asylum, from seven to ten. They are both excellent institutions. The children are educated and industriously employed, until sufficiently old to be apprenticed out, when the utmost care is taken that they are provided with suitable situations.

Magdalen Hospital.—This excellent institution was commenced principally through the exertions of the Rev. Dr. Dingley, Henry Fielding, esq., and the unfortunate Dr. Dodd.

Since the institution of this society, on the 10th of August, 1748, to the 3d of January, 1822, 4986 young women who had strayed from the paths of virtue have been admitted, of whom 2343 have been restored to their friends, or placed in service; and it is an invariable rule, that no female shall be discharged unless at her own desire, or for misconduct, until means have been provided by which she may obtain an honest livelihood.

Since the Magdalen, which is situated in Blackfriars' Road, was instituted, two auxiliary societies have been formed in London; the Fe-

male Penitentiary at Pentonville, which was instituted in 1807, and the *Guardian Society*, for the preservation of the public morals, which, though an infant society, has admitted 681 females into the asylum in St. George's in the East, of whom 170 have been placed in service, 166 restored to their friends, and thirty-six sent to their respective parishes.

Asylum for the Deaf and Dumb.—It appears from medical enquirers on the subject, that in every country one person in less than 3000 is born deaf, and consequently grows up dumb. In France, an institution, under the venerable abbé l'Épée, had long been formed for the instruction of persons in such a state of mental destitution with the happiest effects, but it was not until the year 1792 that a similar establishment was formed in London.

The attention of the British public was first called to the deaf and dumb, by the Rev. John Townsend, and through his exertions an institution formed for their relief; and since the establishment of the deaf and dumb asylum in Kent Road, between 500 and 600 children have been instructed in writing, arithmetic, and the principles of religion. They have also been taught some useful manual occupation, by which, when they leave the asylum, they can earn a livelihood.

School for the Indigent Blind.—Several bequests have been made by benevolent individuals in London for the relief of the blind. Mr. Came, the gentleman who left annuities for the deaf and dumb, placed at the disposal of the Cordwainer's Company a fund for the relief of the blind; and Mr. Hetherington also left a large sum 'for the relief of blind persons of sober life and conversation, not receiving alms, nor being common beggars, nor having any annuity or income of £20, and resident in England.' To this fund, which is vested in Christ's Hospital, other benefactors have contributed, so as to enable the trustees to relieve 450 persons with an annuity of £10 each: another humane individual bequeathed annuities of the same sum to 175 blind persons, which are distributed by the Paper-stainers' Company.

The law of the school for the indigent blind, established in St. George's Fields in 1799, is to instruct persons, thus deprived of one of Heaven's best blessings, in a trade by which they may be able to provide for their existence. The establishment contains about sixty persons, who are employed in the manufacture of baskets, mats, thread, lines, &c., in which they can earn upwards of £600 a year, and thus afford a very essential return to the charity for the benefits they receive.

Philanthropic Reform Societies.—The investigations which of late years have taken place, on the subject of the criminal laws, have led to the establishment of several institutions in London, with the view of correcting offences by other modes than those of direct punishment; and for giving instruction to the most debased. The society for the improvement of Prison Discipline has in a few years effected a moral reform in our gaols, and established order and decency where vice reigned uncontrolled. The institution has also been instrumental in rescuing a

great number of juvenile offenders from the haunts of crime, and of preventing many distressed youths from resorting to criminal practices for support.

The *Philanthropic Society*, in St. George's Fields, was established in 1788, for the reform of discharged juvenile offenders, and the offspring of criminals, by providing them with suitable employment, and training them to habits of virtue and industry. Nearly 200 children of both sexes are admitted into this excellent institution, and instructed—the boys in printing, book-binding, shoe-making, &c., and the girls in needle-work, and other duties, to qualify them for household situations.

Another institution, of a similar nature to the preceding, is the *Refuge for the Destitute*. Although the object of this establishment is the reformation of juvenile offenders, of whom it is calculated there are 8000 in London, yet adults are sometimes admitted to its benefits: they are almost all criminals, who have either been recommended by the judges on their trial, or by the magistrates; or are so young, that it would be improper to inflict upon them the punishments annexed by law to their offences. In the early period of the institution, out of 131 that were admitted, forty-six proved incorrigible; but a better system of instruction and discipline has been adopted; and it appears, by evidence given before a committee of the house of commons, that nine-tenths of the criminals admitted are restored useful members to society.

Marine Society.—This excellent society, for fitting out boys for sea service, and affording an asylum to destitute sailors, was established in 1756. A ship is moored off Deptford for the reception of the boys, who are clothed, fed, instructed, and qualified for sea service; and so extensive have been the benefits of this charity, which was incorporated in 1792, that, since its establishment in 1756, 33,171 boys have been fitted out; and the number of men and boys who have been clothed and relieved by the institution is 72,531. The boys, who have the advantage of the instruction of the Marine Society's School, are invariably the best sailors, whether employed in the navy, the East India Company's service, or in merchant ships.

Institutions devoted to the general promotion of literature in London are not numerous. At the west end of the town is the *Royal Institution*, formed for the purpose of promoting science, and no establishment was ever better patronised in the outset, or more successful in its progress. It was first projected by count Rumford, in the year 1799, for the purpose of teaching, by courses of philosophical lectures and experiments, the principles of science, and their application to the improvement of arts and manufactures as well as the common conveniences of life. The society now possesses a valuable scientific apparatus, by means of which Sir Humphrey Davy made those experiments on the nature and properties of flame, which led to the discovery of the safety lamp; the library of the institution, though not large, is very valuable; and the courses of lectures which are annually delivered on science and literature are well attended.

Royal Society of Literature.—Towards the close of the year 1820, it was suggested to his majesty, that a society of literature, somewhat similar to the French Academy of Belles Lettres, might prove advantageous to the country; the king immediately expressed his approbation, and authorised the establishment of such a society under his immediate patronage. The objects of this institution are, to extend and unite the general interests of literature, to reward literary merit by patronage, to excite literary talent by premium, and to promote literary education, by bestowing exhibitions at the universities and public schools in cases of distinguished merit.

The patronage of his majesty has not been nominal; for, with that munificence which is a leading feature in his character, he has assigned to it a sum of 1000 guineas annually, to be divided among the associates distinguished for their learning, who are to contribute, within the year after their election, a literary essay to be printed in the Society's Memoirs of Literature.

London Institution.—Though commerce, like arts, is a jealous mistress, and requires almost undivided attention, yet the London merchants have not been so absorbed in the pursuit of gain as to neglect those refinements which have ever been attendant on commercial prosperity. In the year 1805 a number of gentlemen connected with the city associated together, for the purpose of forming an institution, calculated to promote science, literature, and the arts. The number of subscribers was limited to 1000; and the shares seventy-five guineas each; the subscription list was soon filled, and the institution opened with a good library in January, 1806, in a house, which formerly belonged to Sir Robert Clayton, in the Old Jewry; the library was afterwards removed to King's Arms Yard, Coleman Street, where it remained until a new and magnificent building was erected for the institution in Moorfields, under the direction of Mr. Wm. Brooks, the architect. This building is 108 feet in length, with two wings of sixteen feet each; the centre has a handsome portico, with pillars of the Tuscan and Corinthian orders, surmounted by a neat pediment. The interior arrangement is admirable; on the ground floor, in addition to the entrance halls, there are separate reading rooms for newspapers, magazines, and reviews, as well as for meetings of the committee, &c., and a noble staircase leads to the library on the first floor, which is ninety-seven feet long by forty-two wide; and the lecture room is sixty-three feet by forty-four. The library consists of a very extensive collection of modern works, and is particularly rich in topography; several courses of lectures on a variety of subjects are annually delivered, and in general are well attended.

The **Russel Institution**, in Coram Street, embraces the same objects on a smaller scale.

The **Red Cross Street Library** was founded by Dr. Daniel Williams, a dissenting minister, who dying in 1715—16, left it for the use of the ministers of his own persuasion. The library has been since considerably increased, and now contains nearly 17,000 volumes, comprising many valuable works on theology. Several interesting portraits of the nonconformist ministers and

curious manuscripts have since been added, to which persons are admitted under certain limitations, on procuring an order from one of the trustees.

Sion College, London Wall, is both a charitable and a literary institution. It was originally a hospital for blind paupers; and, after passing through various hands, was purchased for the purpose of erecting Sion College, for the use of the London clergy, who were incorporated by Charles I. The purchase was made in consequence of the will of Dr. Thomas White, vicar of St. Dunstan's in the West, who left £3000 for the purpose. The library was the gift of the Rev. John Simpson, rector of St. Olave's, Hart Street, one of Dr. White's executors; but it was afterwards considerably increased, both before and after the fire of London, which destroyed a considerable number of the books.

The **College of Physicians** was established in the reign of Henry VIII., when the number of members was limited to thirty. Charles II. increased the number to forty, and James II. extended it to eighty. The first charter was granted by Henry VIII. in the tenth year of his reign, in order, as the preamble states, to restrain the boldness of some wicked people, who all profess physic more for their own covetousness than out of any good conscience, when many inconveniences may arise to the ignorant, credulous, and common sort. This charter was ratified by an act of parliament four years afterwards, which enacted, that 'no person of the said political body and commonalty be suffered to exercise physic, but only those persons that be profound, sad, and discreet, roundly learned and deeply studied in physic.'

Towards the close of the seventeenth century the College of Physicians established three dispensaries, in many parts of London, for the purpose of supplying the poor with drugs at a low rate. Two physicians also attended at each of these dispensaries, in order to give advice to the poor gratis; but these benevolent views do not appear to have been long continued.

The College of Physicians was first held in Knight-rider Street, afterwards in Amen Corner; and, when the latter house was destroyed by the fire of 1666, they purchased some ground to the west of Warwick Lane, where Sir Christopher Wren erected an extensive building in Warwick Square; here the meetings of the society continue to be held, although a new college in Pall Mall East is one of the recent improvements of the metropolis.

Royal College of Surgeons.—Although the surgeons obtained an act of parliament in 1745, to separate from the Barbers' Company, with which they had been incorporated from the reign of Henry VIII., yet it was not until the year 1800 that they obtained a new charter, erecting them into a distinct college. The business of the new society was for some time carried on in the Old Bailey; but a new hall, of the Ionic order, has since been erected, on the south side of Lincoln's Inn Fields, which is enriched with a valuable museum, library, &c. Among its treasures is the extensive collection of the celebrated John Hunter.

Veterinary College.—Until of late years the art of farriery was left to the most ignorant and vulgar class of society, who, unacquainted with the principles of the science, or the properties of medicine, followed the mode of treatment which had been traditionally handed down to them, without any attempt at improvement, or enquiry how far it was proper. In 1791 a college for farriery was erected at the bottom of Gray's Inn Lane. The great object of this institution is, to form a school of veterinary science, in which the anatomical structure of quadrupeds of all kinds, horses, cattle, sheep, dogs, and the diseases to which they are subject, and the remedies proper to be applied, may be investigated and regularly taught. Parliament has frequently afforded liberal support, in order to prosecute this object. The building consists of a theatre for lectures and anatomy; a school, where from thirty to forty pupils are instructed in the veterinary art; and stables for sixty horses.

EDUCATION.—Independent of endowed schools, the parish schools, the Sunday schools, and those on the system of Bell and Lancaster, there are upwards of 4000 private schools in the metropolis and its immediate vicinity. The number of children educated in the last class, though not easily ascertained, can scarcely be less than 100,000.

According to a return, made to parliament in 1819, the proportion of scholars who are educated gratuitously, and those who pay for their instruction, in the several schools in Middlesex (which may be a fair estimate for London, as Southwark is not included), is 16,130, of whom 480 pay; the number educated in the unendowed schools is 24,289, of whom 6742 pay. The total number educated in the endowed and unendowed schools is 36,419, of whom 32,196 are educated gratuitously. In addition to the great number of poor children that are thus educated gratuitously, there are between 40,000 and 50,000 more, who are taught in the Sunday schools, which belong to almost every church and chapel, of whatever denomination, in the metropolis. The teachers of the Sunday schools, who amount to between 4000 and 5000, are all gratuitous, and very assiduous in their attendance.

Westminster School is certainly the first in point of rank in the metropolis. It is supposed to have been founded towards the close of the eleventh century, and to have been one of the public schools alluded to by Fitzstephen. It appears, however, to have declined; since Elizabeth restored or refounded it, in the year 1590, for the education of forty boys, who, in her honor, were called Queen's Scholars. From this period the school has been distinguished for its masters. See WESTMINSTER.

Christ's Hospital.—The foundation of Christ's Hospital was the last act of Edward VI.'s charity. It was only two days before his death that he signed the charter of incorporation for this school, when, with a sort of prophetic consciousness of its future benefits, he exclaimed, 'Lord, I yield thee most hearty thanks that thou hast given me life thus long to finish this work, to the glory of thy name.' It was erected 'for the

education and maintenance of the poor children of decayed merchants and tradesmen of the city of London,' on the site of a convent of Gray Friars, which had been annihilated by Henry VIII. Dobbs, the benevolent lord mayor, and the pious bishop Ridley, were among the earliest patrons of the hospital, and had no inconsiderable share in its formation.

So active also were the citizens in seconding the views of the monarch, that in less than six months the whole monastery of Gray Friars was converted into a hospital, capable of accommodating 340 boys. From this time the school has been continually increasing both in size and importance, so that the 340 scholars have been augmented to the number of 1150. The establishment will now accommodate 1156 children, including eighty girls who are provided for, without any expense to their parents or friends, and furnished with every thing necessary to forward their education. In the year 1809 there were only 1065 children upon the foundation, of whom sixty-five were girls. Of the 1000 boys, 161 were presented by companies, parishes, &c., 498 were sons of freemen, 239 were sons of non-freemen, and 102 sons of clergymen. The hospital was at first particularly intended for orphans; and, although their state of destitution is no longer an indispensable qualification, yet it is a strong recommendation; so that, of the 1000 boys in the school in 1809, there were 360 who were either orphans or had lost one of their parents. About a third part of the children, including all the girls, are educated at an auxiliary branch of Christ's Hospital, at Hertford, whence the boys, when sufficiently advanced in their studies, are transferred to London.

In 1672 Charles II. founded the mathematical school, for the instruction of forty boys in navigation, endowing the hospital at the same time with a sum of £1000 a year, for seven years. This school has seven exhibitions for Cambridge, and one for Oxford, in every seven years.

The government of Christ's Hospital, or the Blue Coat School, as it is more familiarly called, is vested in the lord mayor and aldermen, and twelve common-council-men chosen by lot; benefactors to the amount of £400 are also governors. There are four schools, for grammar, writing, mathematics, and drawing; the boys admitted to the mathematical school are compelled to go to sea, and, when their education is finished, they are placed with commanders of vessels by the governors, and equipped for their situation at the expense of the hospital.

The *Charter House*, situated on the north side of the square to which it gives its name, occupies the site of an ancient monastery for Carthusian monks, called the Grand Chartreux. It was part of the estate of the hospital of St. John of Jerusalem. Sir Walter de Manny, of Hainault, one of those gallant knights who served in the wars of Edward III., and one of the first that were honored with the order of the garter, and Michael de Northburgh, bishop of London, built and endowed the priory for twenty-four monks, in the year 1361. The monastery was suppressed in 1538; notwithstanding the obstinate resistance of the monks.

After the dissolution, the house passed into the hands of the Howard family, who resided at the house; and James I., on entering his new capital, on the 1st of May, 1604, paid his visit here to lord Thomas Howard, who entertained his majesty and suite for four days. Seven years afterwards lord Howard, who had been created earl of Suffolk, sold this estate, for the sum of £13,000, to Thomas Sutton, esq., citizen, and girdler, the founder of the present noble establishment. This he effected at the outlay of £20,000, independent of an endowment of £4493 19s. 10d. per annum. Mr. Sutton intended to preside as master of the hospital, but he died on the 12th of December 1611, six months after he had obtained the charter for its incorporation. The benevolent intentions of the founder were followed by the governors, who, in 1613, made an order, that no one should be admitted into the hospital, but only 'such poor persons as can bring good testimony of their good behaviour, and soundness in religion,' and 'no children whose parents have any estate in lands to leave unto them, but only the children of poor men that want means to bring them up.'

During the civil wars Cromwell was elected governor, and attended several of the meetings; since that period no event has occurred to injure this extensive charity. The number of scholars educated is seventy-three; of whom forty-four are on the foundation, and twenty-nine students at the universities, with an allowance of £20 per annum for eight years. Boys who give no promise of getting a living by their education, are put out apprentices, and have each a sum of £40 on leaving the school. Eighty pensioners are maintained on the endowment, who live in handsome apartments, and have all the necessaries of life provided for them; in order to enable them to clothe themselves, they have each an allowance of £14 a year, and a gown. The hospital is managed by a master and sixteen governors.

The charter house, though a venerable pile, has few vestiges of the ancient conventual building: the chapel is built principally of brick, and lined with wainscot; it has two aisles with Gothic windows; two of these, in the north wall, contain the arms of Mr. Sutton, in painted glass. There are several monuments in the chapel, particularly the tomb of the founder, which was erected at the expense of £400. The old court room is of the age of Elizabeth, and contains a profusion of coloring; the hall is spacious, and the apartments for the master convenient. The grounds, which are large, and well laid out, afford a fine promenade, though not one to which the public have access: and extensive additions are now making to the buildings of the establishment.

St. Paul's School was founded by Dr. John Colet, the eloquent dean of St. Paul's cathedral. So early as the reign of Henry I. there was a school here, and indeed it appears to have been an appendage to every cathedral; for, at a general council held at Rome in 1176, it was decreed that, 'every cathedral church should have its school-master to teach poor scholars and others, as had been accustomed, and that no man should take any reward for license to teach.'

Upon the foundation of this ancient school, dean Colet erected the present seminary, in 1509, for the education of 153 boys. He for this purpose conveyed the whole of his estate in London to the Mercers' Company, to whom he left the perpetual care of the school, and, when asked the reason of committing such trust to them, he observed, 'that there was no absolute certainty in human affairs; but, for his mind, he found less corruption in such a body of citizens than in any other order or body of mankind.' The company have always managed this fund most unexceptionably.

The rules for the government of the school, which are very minute, were drawn up by the dean himself, who directed that in the grammar school, there should be a high master, chosen by the warden and assistants in the Mercers' Company; he was to be 'a man hole in body, honest and vertuous, and learned in good and cleane Latin, literature, and also in Greke, as such may be gotten.' If a priest, he was to be one who had 'no benefice with cure, and no service that may lett the due business in the schole.' Although dean Colet only lived ten years after he had founded the school, yet he had the satisfaction of receiving the congratulations of Sir Thomas More on its prosperity.

The only charge is 1s. on the admission of each scholar. After a classical education, on the foundation, the Mercers' Company have an indefinite number of exhibitions, of £50 a year to each, to either of the universities. In addition to the original fund of the dean, the school has had also several bequests of considerable amount, and a donation of £16,000 three per cents., by viscount Camden, for exhibitions of £100 a year each, at Trinity College, Cambridge.

The original school was destroyed by the great fire, and was rebuilt by the Mercers' Company; but the latter structure has given way to the mouldering hand of time, and is succeeded by a more elegant and more convenient building.

St. Paul's school has ranked among its scholars, Camden the antiquary, Milton the poet, the great duke of Marlborough, the philosophic earl of Orrery, Strype, the editor of Stowe's London, Dr. Edmund Halley, the celebrated astronomer; and several other distinguished persons.

Merchant Taylors' School is one of the most eminent seminaries of education in England. It was founded by the company in 1561, on a spot of ground on the east side of Suffolk Lane, Thames Street, formerly called the Manor of the Rose, belonging to the duke of Buckingham. The statutes of this institution provide that 100 boys shall be taught here at 5s. per quarter, fifty at 2s. 6d. per quarter, and 100 or upwards for nothing. The number on the establishment is seldom less than 300. The boys are instructed by a master and three ushers, in Latin, Greek, Hebrew, and other branches of useful and polite learning.

Sir Thomas White, who was a member of this company, and lord mayor in 1553, anxious to make still further provision for the youth educated at this establishment, founded St. John's College, Oxford, the scholarships of which are regularly supplied from merchant taylors' school.

A grand public examination of the scholars is held for the purpose every year, by the president and Fellows of St. John's College.

In order to provide exhibitions for the more intelligent of the unsuccessful candidates for these scholarships, an anniversary feast was begun in 1698, by gentlemen who had been educated at the school, which has, with a short interruption, been continued to the present time.

The London University and the King's College are entitled to a place in the enumeration of established schools, although of recent formation. The first comprises a handsome building in Gower-street, the second is held in a wing of Somerset House. Both were founded by subscriptions.

PRISONS. *The King's Bench.*—Besides the four principal prisons in the metropolis for debtors—the King's Bench, Fleet, Whitecross-street, and Marshalsea (the latter of which is of a mixed character), there are others belonging to minor courts, and numerous lock-up houses, which are a sort of purgatory through which the debtor passes to prison, unless he either settles with his creditor, or agrees to remain in the custody of the sheriff, which he can only do at a ruinous expense.

The king's bench prison, Southwark, is principally appropriated to the confinement of debtors, although persons convicted of libels and misdemeanors are sometimes confined here, as was the case with lord Cochrane, who contrived, however, to scale the walls, and take his seat in the house of commons.

At what time a prison for the court of king's bench was first erected in Southwark is unknown; but it was formerly customary for the court to be held in different places, and the prisoners to be confined in the nearest gaol. That there has been a prison on or near this spot, for some centuries, we learn from Stowe, who states that, in the reign of Elizabeth, several persons died there of what was called 'the sickness of the house,' which was occasioned by a large number of prisoners being confined in very small apartments.

The king's bench prison, which is surrounded by a lofty wall, contains 200 rooms, in which upwards of 500 persons have been confined at one time. Prisoners, who can give the necessary security, are permitted, during term, to go out for one day, and others may purchase the privilege, in a certain limited district, without the walls, which rules are denominated the rules of the king's bench; they include a space of nearly a mile square; it is not always, however, that the debtor restricts himself to these limits; for, when an application was made, some years ago, to the lord chief justice of the court, that the rules should be extended, he replied, that they were extensive enough, for that, to his knowledge, they reached to the West Indies. The emolument of the marshal of the king's bench prison, as appears by the Report of the Parliamentary Committee in 1815, amounted to £3590 a year, of which £872 arose from the sale of beer in the prison, and £2823 from the rules.

Fleet Prison.—The earliest record we have of the *Prisona de la Fleet*, as it was then called, is in the year 1169, although it is probable that it is of greater antiquity. The Fleet was at this

period, and for some centuries after, used as a state prison. It was long the receptacle for victims of the court of star chamber, and, when that odious court was abolished, was appropriated to debtors and persons committed for contempt of the court of chancery. In the riots of 1780 the prison of Fleet was almost wholly demolished. It has since been rebuilt, and protected in Fleet Market by a high wall. It consists of four stories of 180 feet each, containing 109 rooms, and is calculated, says a very recent historian of London, 'to hold comfortably 250 persons.'

The most serious evil formerly attending this prison was the facility with which illicit marriages might be performed here. Complaints having reached parliament, a committee of enquiry was appointed, who, on investigating the subject, ascertained on evidence that, from the 19th October, 1704, to 12th February, 1705,—2954 marriages were celebrated in this way in the Fleet, without either license or certificate of banns, besides others that were known to be omitted. Twenty or thirty couple were sometimes joined in one day, and their names concealed by private marks, if they chose to pay an extra fee. Pennant, at a later period, confirms this account of the daring manner in which the nefarious traffic was carried on. He says, in walking by the prison, in his youth, he has been often accosted with 'Sir, will you please to walk in and be married?' and he states that painted signs, containing a male and female hand conjoined, with the inscription, 'Marriages performed within,' were common along the building. A dirty fellow, outside, generally conducted you to the parson, a Bardolph looking fellow, in a tattered night-gown, who, if he could not obtain more, would marry a couple for a glass of gin or a roll of tobacco, though he has sometimes been known to marry twenty or thirty couple at from 10s. to £1 each. This glaring abuse was only put an end to by the marriage act in 1753.

Marshalsea Prison.—The court of marshalsea was at first instituted for determining the causes of the king's menial servants, and was under the control of the knight marshal of the household. It now has a jurisdiction extending twelve miles round Whitehall (the city of London excepted), for actions, debts, damages, and trespasses. The prison is appropriated to pirates and debtors; but it is small, inconvenient, and unhealthy, on account of the crowded state it frequently is in. A benevolent debtor, a Mr. Allnutt, who was for some time a prisoner in the marshalsea, had a large estate bequeathed to him during his confinement. He had learned sympathy by his sufferings; and, feeling for others' woes, left £100 a year for the discharge of poor debtors from this prison, by which means, every year, many obtain their liberation. The average number of debtors in this prison is stated, in the Parliamentary Report of 1815, to be about sixty.

Whitecross Street Prison.—When so much humanity has of late years been manifested by the legislature, in mitigating the severity of the laws against debtors, it is much to be regretted that the last prison erected for their confinement should unfortunately be of a very opposite description. The committee of the house of

commons appointed in 1815, to enquire into the state of the prisons of the metropolis, say 'they have much to regret, that those who have had the management of this building should have suffered a prison to be undertaken upon a plan so little likely to answer its object.' Whitecross Street is calculated to hold 400 prisoners, who are separated into different wards, accordingly as they are city or county prisoners.

Newgate.—So early as the year 1218 Newgate (so called from its being later built than the rest) was used as a prison, and continued as such until finally removed in 1777; but, although the gate was frequently rebuilt, yet there seems to have been no attempt at improving the apartments; and, so late as the year 1750, a pestilential disorder, called the gaol fever, broke out among the prisoners, owing to so great a number being confined in so small a space; the infection extended from the gaol to the sessions house, when Sir Samuel Pennant, lord mayor, alderman Sir Daniel Lambert, the chief justice of the court of common pleas, Sir Thomas Abney, Mr. Baron Clerk, Mr. Cox, under sheriff, several barristers, and nearly the whole of the jury, and several spectators, fell victims to this pestilential disease. Notwithstanding this melancholy event, twenty years elapsed before the first stone of a new prison was laid by alderman Beckford; and scarcely was the building finished, when the whole of the interior was demolished, during the disgraceful riots of 1780. To repair the damage that was done in a few days by those 'lords of misrule,' a London mob, £30,000 was necessary, which was chiefly supplied by parliament.

Newgate is now a massy and somewhat superb building, and perhaps the exterior appearance of no structure ever better corresponded with the purpose for which it is intended; there is a sort of gloomy grandeur and terror-striking uniformity in its outer walls, which would at once point it out as the abode of crime or misery. The interior of the prison is equally suitable to its objects; the cells for condemned malefactors are dark as the grave itself; and such is their impression, even on the most hardened, that Mr. Howard says, 'I was told by those who attended me, that criminals who had affected an air of boldness during their trial, and appeared quite unconcerned at the pronouncing sentence upon them, were struck with horror, and shed tears when brought to these darksome solitary abodes.'

Since the debtors have been removed to the new prison, in Whitecross Street, there is a better opportunity of classifying the prisoners; but they are still too numerous to enable the keeper to do this effectually: the average number of prisoners in Newgate is 420.

Adjoining the prison is the *Sessions House*, where there is a gaol delivery eight times a year, and yet the prisoners are so numerous that each session generally continues a fortnight or three weeks.

Giltspur-Street Compter, Newgate, was built according to a plan suggested by the benevolent Howard. It is confined solely to the city of London, and is a prison for offenders before trial, and a house of correction for such as have

been convicted and sentenced to various terms of imprisonment, of from one month to two years. It is also used for persons committed for assaults, night charges, disorderly persons, vagrants, and prisoners remanded for future examination; and numerous indeed are the persons who run the gauntlet of at least one night's lodging in Giltspur Street Compter; as it appears by the evidence of Mr. Teague, the keeper, that from the 1st of January, to the 31st of December, 1818, inclusive, 4581 persons were committed to this prison, of whom 1176 were for felonies, 637 for assaults, 1721 for misdemeanors, and 1407 as vagabonds.

Cold Bath Fields.—This prison, which is called the house of correction for the county of Middlesex, was, like Giltspur compter, built on the suggestions of Mr. Howard, though it is to be doubted, whether his benevolent objects have been realized.

It contains nearly 300 sleeping cells, and even these are sometimes found insufficient; so that barracks of wood, in each of which from fifteen to thirty persons sleep, are erected in the yard. In the year 1818, 3902 persons were committed to this prison, of whom 748 were females: and the average number of prisoners is about 400. The prison is almost entirely used as a house of correction; the prisoners were employed in picking old rope for oakum, until the year 1823, when a tread-mill capable of working 320 individuals was introduced. The annual expense of maintaining this prison is about £7000.

Clerkenwell Prison.—Bridewell was anciently not only the prison for the city, but for Middlesex also, and all offenders were sent there by the justices; but, says an old historian, 'These miscreants so increased that Bridewell could not contain them, nor employ them, neither were the governors willing to receive them.' It was therefore, in the year 1615, found necessary to build a new prison, and Clerkenwell was fixed upon as the spot. The building which, together with the ground, cost £2500 was defrayed by the justices and the inhabitants. The governors of Bridewell gave £500, which was principally expended in furnishing the prison. Previous to the erecting this prison there had been a sort of large watch-house called the cage, which was taken down in 1614.

The present Clerkenwell prison, which is nearly on the site of the old one, is a sort of auxiliary to Newgate, and includes prisoners waiting the Old Bailey sessions, who are always removed to Newgate on the Thursday previous to their commencement—others for petty larcenies who are detained for the Middlesex sessions, and prisoners committed for re-examination. The prison is capable of holding 350 prisoners, and, in the year 1818, 4012 persons were committed to the new prison Clerkenwell.

Tothill-fields Bridewell.—Upwards of 3000 persons are annually committed to this prison, and the average number of inmates is about 100, who for a day room have only one apartment, which measures no more than twelve feet by twelve and a half. This prison is wretchedly deficient in size and means of classification, and the place where it stands is unhealthy.

The *Borough Compter* is equally defective in point of classification, as prisoners of all ages, and of every grade in crime, are compelled to herd together.

The *Surrey County gaol*, in Horsemonger Lane, was built in 1781, and is appropriated to the confinement of debtors as well as felons. Adjoining to the prison is the sessions house, where all misdemeanors are tried, and the assizes for the county are sometimes held. On the top of this prison colonel Despard and his associates were executed in 1803.

The *Club Houses* belong to the west end of the town: we can only here find room for a brief notice of one or two of our older London taverns. No prince, or even knight, is now found to indulge in open revels, as prince Hal and Falstaff, and all 'the merry men of Eastcheap,' did at the Boar's Head; nor would our Raleighs, our Shakspeares, our Ben Jonsons, Beaumonts, Fletchers, or Seldens (had we any such) pass their evenings in taverns in Aldersgate Street, Fleet Street, or Cornhill, as the worthies we have just named, were in the habit of doing. Yet while it is remembered that Shakspeare, Ben Jonson, Beaumont, and others of their contemporaries used to assemble at the Mermaid tavern, Cornhill, and that under Sir Walter Raleigh an intellectual and convivial society of the spirits of the age was formed, called the Mermaid club, which, says Mr. Gifford, 'combined more talent and genius, perhaps, than ever met together, before or since, an interest will be attached to these spots.' Beaumont in a poetic epistle, from the country to Jonson, has described the 'wit combats,' as Fuller calls them, which in those days took place at the Mermaid tavern.

Ben Jonson was a great frequenter also of the Devil Tavern, by Temple Bar (now occupied by Child's Place), and the Swan Tavern, near Charing Cross. 'Rare Ben' appears to have owed much of his inspiration to sack and canary: in a MS. preserved at Du'wich, and said to be his journal, he ascribes the failure of some of his pieces to the death of the 'honest Ralph,' when he appears to have left the house; for, says he, 'I and my boys drink bad wine at the Devil.' This, however, was not always the case; for in another memorandum he says, 'The first speech in my Catiline, spoken to Sylla's ghost, was writ after I had parted with my friends at the Devil Tavern; I had drank well that night, and had brave notions.'

At a later period we find the men of genius mixing together at a tavern, many allusions to which are made in the *Spectator*, the *Tatler*, and other essays of the early part of the last century. Sir Richard Steele was fond of a tavern, and however ridiculous his uxoriousness may, and must appear, yet we have always thought a passage of one of his letters to his wife, written from a tavern, particularly expressive, when he assures her that he will be with her, not in half or a quarter of an hour, but 'within half a bottle of wine.'

The Kit Cat Club, 'the patriots who saved Britain,' as Horace Walpole designates them, originally met at the house of a pastry cook, in Shire Lane; yet they soon enabled Christopher

Cat, their host, to accommodate them better at the Fountain in the Strand, where their principal meetings were held.

A more ancient tavern, however, than any of these, was the Tabard, in the Borough (now the Talbot) the place whence Chaucer's pilgrims set out.

The taverns of the present day can scarcely boast of any literary associations; and although professor Porson frequented a house in the neighbourhood of Covent Garden, which now displays his portrait, it was rather to indulge his unfortunate propensities unrestrained than to seek society.

The first Theatres.—When dramatic representations ceased to be founded on religious subjects, they were no longer performed in churches, as was the case sometimes with the mysteries and moralities, and playhouses became necessary. The convenient form of the inns (still preserved in many of them) in London, with an open area in the centre, and a gallery on each side of the quadrangle, presented itself as a theatre ready made, with the exception of the stage: this was easily raised, either in the centre or on one side of the court, and thus many of our early dramatic pieces were performed. Even the first theatres were but a very slight improvement, for the area or pit was generally exposed to the air.

The first company of players that received the sanction of a patent was that of James Burbidge and others, the servants of the earl of Leicester, to whom queen Elizabeth granted a patent in 1574.

It appears from Stowe that the first players were 'ingenious tradesmen and gentlemen's servants,' who united in a company of themselves 'to learn interludes, to expose vice, or to represent the noble actions of our ancestors;' but that in process of time it became an occupation, when the players publicly 'uttered popular and seditious matters, and shameful speeches; and, these plays being commonly acted on Sundays and festivals, the churches were forsaken, and the playhouses thronged.'

When the first London theatre was built, or where it was actually situated, seems doubtful; but, early in the reign of Elizabeth, the Curtain, the Red Bull, and the Globe theatres, were all flourishing. Pennant was so anxious to identify Shakspeare with the Globe Theatre, that in a map he has given, purporting to be a plan of London and Westminster in the year 1563, he has introduced the singular anachronism of 'Shakspeare's play-house,' although the immortal bard was not born until the following year,—nor the Globe Theatre built on the site of an amphitheatre for bear-baiting in Bankside, Southwark, until the year 1596, 1598. The Globe was burnt down on St. Peter's day, the 29th of June 1613. The fire originated, according to Winwood, with the mimic discharges in Shakspeare's play of Henry VIII., when the rushes of the roof caught fire; and he adds, that the attention of the audience was so much engaged with the actors, that they did not notice it.

Near the Globe in Southwark, which seems to have been the first refuge of the regular drama,

were the Swan and the Rose, two very early theatres, and they appear to have been very attractive, if the assertion of Taylor, the water poet, can be relied on, that 'about the year 1596, the players began to play on the Bankside, and leave playing in London and Middlesex for the most part.' There were also either then, or soon after, six other theatres on the Middlesex side of the Thames.

If the Globe was rendered memorable by Shakspeare's connexion with it, the Curtain Theatre near Shoreditch, the name of which is preserved in the Curtain Road, had a similar distinction, by its being the place where 'rare Ben Jonson' acted, before he obtained celebrity as an author; yet the Curtain Theatre never appears to have flourished, although it had as an actor, Dick Tarlton, one of the best comedians of the time of Elizabeth. We can only further name the Red Bull in Clerkenwell, the Fortune, Barbican, the Blackfriars and the Whitefriars, as early play houses.

The first theatre in *Drury Lane* was a cockpit, which, hoisting a phoenix for a sign, was sometimes called by that name; it was not, however, until after the restoration of Charles II. that a house suitable for the accommodation of the public was erected. It soon shared the too common fate of the London theatres, and was burnt down in 1671; and three years afterwards it was rebuilt under the direction of that great architect, Sir Christopher Wren. This fabric, which was of considerable dimensions, and excellent in its internal arrangements, remained undisturbed until the year 1791, when it was determined to take it down and rebuild it on a scale better adapted to the increased population, and more refined taste of the age. In building the new theatre, in 1793, the architecture fell into an opposite extreme; the house was so enlarged in its dimensions as to be a theatre for spectators rather than hearers; and as the audience lost all those advantages which a convenient distance from the speaker gave in seeing the expression of his countenance, and hearing the varied modulations of his voice, the love of spectacle, which had already manifested itself, began to predominate.

As so many theatres had been destroyed by fire, it was determined to take every precaution against such a calamity in future. An iron curtain, which resisted the force of a sledge hammer, was constructed, so as to let down in a moment of danger, and separate the audience from the stage, while a reservoir was formed on the top of the house, filled with water sufficient, as the epilogue spoken at the opening of the theatre, by Miss Farren, gave assurance, to 'drown the audience in a minute.' On the first night the iron curtain was let down, and the stage was filled with water, on which a man rowed round with a boat; the managers boasted of their reservoirs,

A firm reliance,
Whose streams set conflagration at defiance.

But these were 'luckless words,' a 'bootless boast;' for, fifteen years afterwards, the whole fabric was burnt to the ground. This calamity

occurred on the 24th of February, 1809, and so rapid were the flames, that, although the fire did not break out until 11 o'clock at night, the immense edifice was reduced to a pile of ruins in less than three hours.

So various and so conflicting were the interests in the property of the theatre, that it was long before they could be reconciled; at length it was determined to rebuild it on a somewhat diminished, but more magnificent scale, and Mr. B. Wyatt was appointed architect for the purpose. From his plan, and under his direction, the present edifice was raised, and opened to the public on the 10th of October, 1812.

The rebuilding the interior of the theatre cost upwards of £14,000, and was executed in the short period of two months. It is due to the proprietors to state, that every alteration, while it adds something to the comfort of the audience, renders the ornamental decorations more chaste and elegant, and it is difficult to conceive a more beautiful structure in its interior than Drury Lane Theatre. The grand entrance, in Brydges Street, is through a spacious hall into a rotunda of great beauty; two noble staircases lead to the boxes, and to a saloon eighty-six feet in length, the walls of which are nearly covered with looking-glasses: the lobbies are spacious, and the house, which is lighted with gas, is well aired and ventilated. The exterior of the theatre is plain, but by no means inelegant. To the front, which is of the Doric order, a portico, surmounted by a statue of Shakspeare, was added in 1820, which is infinitely beneath the dignity of so noble a structure. Both the theatres of Drury Lane and Covent Garden enjoy the privilege of a royal patent, which authorises them to act dramas of every description, from tragedy, comedy, farce, operas, ballads, or spectacles of every class, provided they have previously been submitted to, and authorised by, the lord chamberlain.

In its general management, in the character of the performance, and in the periods at which the house is opened and closed every season, *Covent Garden Theatre* resembles that of Drury Lane; and while there is an honorable rivalry in the elegance of their respective structures, in the spirit with which new pieces are produced, or new actors of eminence are obtained, the proprietors are mutually accommodating to each other.

Covent Garden Theatre possesses a patent, originally granted to Sir William Davenant, and under which successive companies acted at the theatres in Dorset Street and Lincoln's Inn Fields; nor was it until 1733 that a theatre was built in Bow Street, Covent Garden, when Mr. Rich, who had formerly had the direction of Drury Lane Theatre, and afterwards that of Lincoln's Inn fields, removed to the new theatre, over which he presided until the year 1761, having been for fifty years the manager of a company under the patent granted by Charles II. In 1767 Mr. Harris, a young man who had not attained his twenty-first year, became a principal proprietor of this theatre, a considerable share of which remains in his family. Various improvements were made in the interior of this

theatre, and in 1792 Mr. Harris expended £25,000 upon it, when the prices of admission were raised. For some years Drury Lane had an advantage over Covent Garden, in possessing the talents of Mrs. Siddons, and her brother John Philip Kemble, who did so much to rescue the stage from the ridiculous and barbarous costume which had hitherto disgraced it; but in the year 1800 this company gained a great accession of strength in the person of George Frederick Cooke, whose debut on a humbler stage has already been noticed, and whose talents and dissipation made him so long an object of public admiration and regret.

On the 2d of September, 1808, this theatre, with all that it contained, was completely burnt to the ground,—and so rapid were the flames, that they threatened destruction to the whole neighbourhood, several houses caught fire, and were reduced to ruins, and the walls of the theatre falling twenty persons were killed. No time was lost in rebuilding this theatre, the first stone of which was laid on the 31st of December, 1808, by his present majesty, then prince of Wales. In ten months this immense edifice was finished, and opened to the public on the 18th of September, 1809, when a new danger threatened the proprietors, who, having built the theatre at an expense of £150,000, sought an indemnity, by raising the price of admission. This was warmly resisted by the public; and for more than a month the theatre was a scene of continued riot and confusion, which is known by the name of the ‘O. P. (old prices) war.’ At length a compromise was effected; but the injury done to the theatre, and the loss sustained from other causes, was long felt by the proprietors. This theatre, like that of Drury Lane, is continually receiving some new alteration or improvement in its interior, which is at once elegant and convenient.

King's Theatre, Haymarket.—The opera had become so popular early in the last century, that a theatre was built for it in the Haymarket by Sir John Vanburgh, the architect. It was raised by thirty persons of rank, principally of the whig party, if we may judge by their inscribing the first stone with the words ‘Little Whig,’ in compliment to lady Sunderland, a celebrated beauty of the day. The money subscribed was £100 each, and the theatre opened on the 9th of April, 1705, with an Italian opera, which was far from being successful; it, however, continued under various managers, and with doubtful success, until the year 1720, when a sum of £50,000 was raised by subscription to support the Italian opera, which has ever since ranked as one of the favorite amusements of the fashionable world.

The Opera House was burnt down on the 17th of June, 1789; and on the 3d of April, in the following year, the first stone of the present structure was laid, by the earl of Buckinghamshire, with numerous inscriptions, one of which, ‘Prævalebit justitia,’ is excessively common place, and more applicable to a court of law, than a theatre erected for singers and dancers. Although the interior of the ‘king's theatre,’ as it was now called, is well constructed, yet in its external ap-

pearance it was one of the most gloomy and clumsy buildings of the metropolis, until, in the recent improvements in this part of the town, a fine colonnade was added to the fronts in Pall Mall and the Haymarket, and the whole exterior remodelled, covered with stucco, and embellished with a relievo, by Mr. Budd.

The interior of the king's theatre is magnificent and extensive. It contains 172 boxes, of which sixty-eight are said to be private property.

The little theatre in the Haymarket, as this house was called, to distinguish it from the opera-house, has long possessed an uninterrupted and extensive share of public favor. This theatre owes its rise to a speculating mechanic of the name of Potter; it was first raised in 1720, without any specific object beyond that of leasing it to the French players, as the foreign players and singers were then called, be their country what it might. It was opened on the 29th of December in that year. Foote had the old theatre taken down, and a new one built; but whether this was an improvement or not may be fairly doubted, as a more disagreeable or inconvenient structure can scarcely be conceived than the late theatre, opened in May, 1767. In nothing was the house more disadvantageously constructed than in the entrances, which were extremely narrow; a melancholy proof of this occurred on the 3d of February, 1794, when, his majesty having bespoken the play, the rush to the pit on the opening of the doors was so great, that fifteen persons were killed, and more than twenty others dreadfully injured. It has been severally under the management of Foote, the two Colmans, and Thomas Dibdin, all gentlemen of such talents, and so intimately acquainted with the detail of a theatre, as to ensure its success.

In 1821 the old theatre was taken down, and a neat, as well as a more commodious building was erected, from designs by Mr. Nash. In the front is a portico, supported by six columns: above the portico are nine circular columns, which are ornamented and connected with the entablature. The interior of the theatre, though it is not very conveniently arranged for comfort, is creditable to the artist, particularly the boxes, which are capable of little improvement.

English Opera House.—The Lyceum, or, as it has since been called, the English opera house, in the Strand, was opened in June, 1809. It did not at first meet with the patronage to which so laudable an attempt was entitled, and the plan has since been extended so as to include farcical burlettas and serious melo-dramas, as well as operas.

The lyceum was rebuilt a few years ago under the directions of Mr. Beazely, an architect whose talents in this line have been successfully exercised on several occasions in London, as well as in Dublin; and a neat portico was afterwards erected in the front.

This theatre was destroyed by fire in the month of March, 1830.

The *Surrey Theatre*, in Blackfriars' Road, formerly called the Royal Circus, was built about the year 1779, for burlettas and equestrian exercises.

and was for some time under the direction of the British Tyrteus, Charles Dibdin. In 1805 it was burnt down, but was immediately rebuilt. It has recently been remodelled in the interior, and is one of the largest and most elegant of the minor theatres.

Astley's Royal Amphitheatre, Westminster Bridge (for it will not easily lose its name, although Astley is no more, and he is succeeded by Mr. Davis), was first opened about the year 1767 as a riding-school by Mr. Peter Astley, who had served in the army, and was a remarkably good horseman. The skill he displayed in managing the noblest of all quadrupeds attracted public attention, and Mr. Astley thought he might turn it to advantage by receiving money as an exhibition. An information was soon lodged against him, when, fortunately for him, his late majesty was riding over Westminster Bridge on a spirited horse, which proved restive and unmanageable even by the king, who was an excellent horseman. Mr. Astley happened to see him come up, and soon convinced his majesty of his skill in the managing of horses; the result was, that Mr. Astley got rid of the information, and in a few days obtained a license. The amphitheatre is now principally celebrated for its equestrian spectacles and gymnastic exercises.

The *Cobourg Theatre*, in Waterloo Bridge Road, which indicates its recent origin by its name, is an elegant little theatre, and was built in 1817. It is more remarkable for the beauty of the scenery than the merits of the dramas produced, or the talents of the actors.

Sadler's Wells Theatre was long celebrated for its Naumachia, which it exhibited by means of having a large current of water to flow under the stage. The real water, so long its greatest attraction, is now very seldom resorted to; and melo-dramas, burlettas, and pantomimes, are the favorite performances: in the latter description of pieces, Sadler's Wells theatre had, for many years, the benefit of Grimaldi's talents as clown. A dreadful occurrence took place at this theatre on the 15th of October, 1807, when some person, from mere wantonness, it is supposed, called out 'a fight,' which was mistaken for the word 'fire.' In vain did the manager come forward to assure the audience of the mistake,—they rushed from the gallery with dread impetuosity; and many, finding the avenues blocked up, leaped into the pit; in consequence of which, eighteen persons were killed, and several others wounded. The managers granted free benefits to the relatives of the deceased.

The *Adelphi Theatre*, formerly the Sans Pareil, in the Strand, and the *Olympic Theatre*, in Wych Street, erected by Mr. Astley in 1806, are small, but neat theatres, where burlettas and pantomimes are performed; and such are generally the amusements of the *West London Theatre*, in Tottenham Street, Tottenham Court Road, although it has occasionally been used for French subscription plays.

The *Royalty*, or *East London Theatre*, in Well Street, Wellclose Square, presented many amusing scenes during the war, of real, and not of mimic life, on account of the company by which it was frequented being principally sailors.

This theatre was built in 1787, with a view of performing the regular drama, which it was supposed the magistrates of the Tower Hamlets, in whose precincts it was, could authorize. Mr. John Palmer tried the experiment, which was only permitted one night. The performances were then confined to pantomimes and pantomimic burlettas, and that very rigidly. It was burnt in 1826; and a new theatre, erected from designs by Mr. Whitwell, fell to the ground shortly after its completion.

Royal Academy of Music.—Numerous as the literary and scientific institutions in the metropolis are, and highly conducive as they have been in promoting the objects for which they were established, one was yet wanting devoted exclusively to music. Such an institution has recently been formed under the immediate patronage of his majesty; and, though yet in its infancy, it promises to rank with the most flourishing institutions in the country. The object of the institution, which was founded in 1822, is 'to promote the cultivation of the science of music, and afford facilities for attaining perfection in it, by assisting in the general instruction of the natives of this country, and thus enabling those who pursue this delightful branch of the fine arts to enter into competition with, and rival the natives of other countries, and to provide for themselves the means of an honorable and comfortable livelihood.'

In order to attain these objects, a number of pupils, male and female, proportioned to the funds of the institution, are admitted, between the ages of ten and fifteen, and instructed by the best masters. The students pass an examination to ascertain if they possess a decided aptitude or disposition for music, before they can be admitted as candidates, and the election takes place by ballot; the subscribers voting according to the amount of their contributions. Each student, on being admitted, pays fifteen guineas to the funds, and ten guineas annually; but the fees of the children of professors of music are somewhat modified.

The noble mansion lately occupied by the earl of Carnarvon, in Tenterden Street, Hanover Square, has been fitted up for the purposes of the Academy. The rooms are of large dimensions, two of them being upwards of seventy feet each in length, and the other apartments afford every convenience. The professors, selected to superintend this establishment, are gentlemen of acknowledged talent.

Concerts.—So great is the love of music among the British nobility, or so liberal is their patronage of its professors, that the mansions of several noblemen are not only thrown open to their friends, whom they entertain with a concert, but they permit eminent musicians to take a benefit at their houses, which they cause to be fitted up for the purpose—a compliment not paid to any other class of individuals.

Independent of these concerts, and of those given by subscription at taverns and public rooms, there are several buildings in London devoted almost exclusively to musical entertainments; and numerous associations formed to promote the science. The Argyle Rooms, in

Regent Street, which were rebuilt in a splendid manner in 1818, were the first, but these have lately been destroyed by fire. They consisted of a grand concert-room, fitted up with an orchestra at one extremity, and boxes at the other, a ball-room of large dimensions, a drawing-room, and ante-room, and other apartments. These rooms were let for balls, concerts, and masquerades; and here the Royal Harmonic Institution, which is as much of a trading as a scientific association, was established. This society, which is managed by musical professors, gives lectures, publishes musical works, and purchases and disposes of harps, piano fortes, and other musical instruments. The *Philharmonic Society* was established in 1813. Other minor, but meritorious musical societies, we have not room to particularise.

PUBLIC GARDENS.—Vauxhall is the only one of those once popular places that retains its original character, the others having either entirely disappeared, and their sites been occupied by buildings, or they have sunk into common tea-gardens, where the humbler classes of society relax on a Sunday evening in summer, and indulge themselves with a glass of ‘home-brewed ale,’ or their wives and families with a cup of tea.

The most celebrated of the modern public gardens was Ranelagh, near Chelsea, once the seat of a nobleman of that name. On his death, in 1733, the estate was sold, and fell into the hands of some speculative gentlemen, who determined on forming it into a place of public amusement, similar to Vauxhall, which had just risen into popularity. In the fitting up the gardens, a magnificent rotunda was erected, 150 feet in diameter, in which was an orchestra, with numerous boxes and seats for the audience. The entertainments principally consisted of vocal and instrumental music. The rotunda was opened with a public breakfast in April 1742, which was followed by a concert. The inhabitants of London are, however, too much occupied to assemble in sufficient numbers for entertainments in the day, and the morning concerts at Ranelagh were soon relinquished for evening amusements. For some years the tide of fashion set strong in favor of Ranelagh, which was one of the most attractive resorts of the gay world; but afterwards, ceasing to be popular, the proprietors, in 1803, rased the building to the ground and sold the materials. The price of admission was half-a-crown.

Mary-la-Bonne Gardens occupied the site of Manchester Square; they were not formed into a place of regular amusement until the year 1737, when Mr. Gough the proprietor, who had before kept them gratuitously open, charged a shilling to each person, who in return received a ticket, which enabled him to have victuals or liquor to the full amount of the money paid on entering the gardens. Charles Dibdin and Charles Bannister made their debut, when youths, in *Mary-la-Bonne Gardens*, where very splendid fêtes were frequently given, particularly on the birth-day of his late majesty. Fire-works, and a representation of Mount Etna, were among the amusements. A sort of fair was once held in the gar-

dens, which were on that occasion fitted up with numerous shops and booths.

Islington was long celebrated for its public gardens; for, in addition to White Conduit House, and Bagnigge Wells, now mere tea-gardens, there were the New Tunbridge Wells, or Islington Spa, and Sadler’s Wells, which have been erroneously confounded as the same by most of the London local historians. The Islington Spa, a spring of chalybeate water, now in a small garden in Lloyd’s Row, near the New River Head, was discovered about the year 1690, and was opened to the poor gratis, provided they did not go out of mere curiosity, but with a certificate from a surgeon or an apothecary. A few years afterwards, as we learn by an advertisement of the year 1700, there was ‘music for dancing all day long every Monday and Thursday during the summer season,’ but, with a due regard to public morals, no masks were admitted. In 1733 the Islington Spa rose to the very height of popularity. Their royal highnesses the princesses Amelia and Caroline, having been recommended the use of chalybeate waters, repaired to Islington daily during the season of that year. Their example was soon followed by the nobility and gentry to such an extent, that the proprietor frequently took £30 in a single morning.

White Conduit House, where the humbler class of the inhabitants lie, merry-hearted, on a Sunday, is one of the most celebrated of all the tea-gardens in the neighbourhood of London, numerous as they are. The house takes its name from an old stone conduit, erected in the year 1641, which supplied the charter-house with water through a leaden pipe. The garden of White Conduit House is very spacious, and a neighbouring field was formerly attached to it as a cricket-ground, where a club of noblemen and gentlemen assembled to practise that game. This house was some years ago occupied by a Mr. Christopher Bartholomew, a gentleman whose unconquerable passion for gaming in the lottery reduced him to beggary, notwithstanding he was at one time worth £50,000, and had several lucky hits, one of which he celebrated by a fête champêtre in these gardens, ‘to commemorate the smiles of fortune,’ as the tickets of admission expressed it; it was, however, no wonder that he was ruined, as he sometimes spent 2000 guineas a day in insurance in the lottery, selling his stacks of hay or any thing to raise the money. The last thirteen years of his life were passed in great poverty, yet still his passion never forsook him; and when towards the close of his life he got about £600 by a new adventure in the lottery, and had purchased an annuity with the money, he sold it again to indulge in his fatal propensity.

There are several other tea-gardens much frequented on Sundays, but they appear rapidly declining in popularity; and Bagnigge Wells, once the residence of the celebrated favorite of Charles II., Nell Gwynne, is by no means respectably attended.

On the Surrey side of the Thames was formerly the Bermondsey Spa, in Grange Road Bermondsey. The spring, which was chalybeate, was discovered in 1770; but, some years previous

to this time, Mr. Thomas Keyse, the proprietor of the gardens, a self-taught artist, rendered them attractive by exhibiting a collection of his own paintings, principally subjects of still life, which possessed considerable merit. Keyse afterwards obtained a license for opening his gardens with musical entertainments during the summer season. Burlettas were also sometimes performed on small temporary stages, erected in the garden. Fire-works were occasionally introduced; and one season Mr. Keyse constructed an immense model, which covered four acres of ground, of Gibraltar, in order to represent the memorable siege of that place in 1782. The height of the rock was upwards of fifty feet, and the exhibition was as popular as it was creditable to the mechanical ingenuity of Mr. Keyse, but his talents were almost thrown away from the unfavorable situation in which they were exerted.

Independent of the public gardens in the immediate environs of the metropolis, attempts have been made to introduce them at some distance from town; and in the year 1742 Ruckholt House, Layton, Essex, which is said to have been once the mansion of queen Elizabeth, was opened by Mr. Barton, the proprietor, with public breakfasts, weekly concerts, and occasional orations, but the distance from town was unfavorable, and the entertainments were not continued more than four years.

Several of the taverns near London have large gardens, which are much frequented in the summer season, although they possess no attractions beyond the sale of refreshments.

Modern improvements.—If during a war, unexampled in its duration, and in the expense at which it was sustained, the British metropolis continued not merely to add house to house, but street to street, and to increase in magnificence, it was to be expected that, ‘the piping time of peace’ would give a new impulse to improvement. Such, indeed, is the case; and with the exception of the west end of the town, where Hyde Park seems to say, ‘hitherto shalt thou go, and no farther,’ we see London stretching out its Briarean arms in every direction, swallowing up every villa in its environs, and making them a part of the great capital. Islington has long been connected with London, which still, unsatiated, stretches northward. Somers’ Town has no other division from the rest of the metropolis than a road, and Kentish Town, and Camden Town, will soon be closely connected with it. Hackney can scarcely be called a distinct village; and eastward we find a chain of buildings erecting, which will soon unite the adjacent villas with ‘enlarged and still increasing London;’ if we turn to the south we shall find the buildings increasing so rapidly, that Greenwich road will soon become one continued street.

Nor is it in the environs of London only that the spirit of improvement has gone forth, since it pervades almost every part of the metropolis. Within a few years Moorfields has been changed from a barren field to a neat circus; the Bank has been enlarged; the only private house remaining, built by Sir Christopher Wren, formerly the civic palace, restored in a style appropriate to its original grandeur, and numerous

other improvements in hand, and in contemplation. At the west end of the metropolis, the change is still more manifest. Charing Cross the only memorial of the affection of Edward I. for his beloved Eleanor, remaining in London, still retains its form, as does the equestrian statue of Charles I., cast by Le Sœur, but the alterations in the immediate neighbourhood are immense. Where the royal stables formerly stood (the Mews) splendid buildings are arising, and the church of St. Martin’s in the fields will no longer remain like a candle hid under a bushel. Scotland Yard (so called from the kings of Scotland having a palace there, when they visited London) is now occupied by a fine street stretching towards the river, and the cathedral of St. Paul’s can now be viewed from the admiralty.

Regent Street, which extends from Carlton House to Portland Place, though of varied architecture, some of which is not in good taste, is still a noble street, and leads to one of the greatest ornaments of the metropolis, the Regent’s Park, around which noble terraces are springing up, as if by magic. This park, which is very spacious, is beautifully laid out; the grounds exhibiting a charming variety of lawns, lakes, shrubberies, &c. Such are a few of the improvements which have taken place under the auspices of George IV.; and if it cannot be said of his majesty, as of the Roman emperor, that he found a city of brick, and left one of marble, it cannot be denied that, while he has sustained the national honor abroad, he has done more to patronize literature, to advance the fine arts, and to improve the metropolis, than any sovereign that ever wielded the British sceptre; and should providence spare his majesty to complete his designs, and preserve the peace of Europe, we may anticipate that England will continue to be the first country, and London the first city, in the world: and in the last words of Paolo Sarpi, in speaking of his native Venice, we shall say of London, *Esto perpetua!*

PART IV.

GOVERNMENT OF THE CITY OF LONDON.

The office of *lord mayor*, as we have seen, was first recognised about the commencement of the thirteenth century.

According to the charter of king John the right of electing the mayor was vested in the citizens at large. After the common council was established, they appear for a time to have usurped the place of the general body of freemen; but, returning to a juster sense of the rights of their constituents, they passed, in 1475, a declaratory act of council, by which the election to the office was declared to belong to the mayor, aldermen, and common council, and the masters, wardens, and liverymen of the city companies, or, in other words, to the citizens at large, according to the fair acceptance of the terms, and thus it has ever since continued.

This right of election was accompanied with the discretionary power of continuing the same individual in office from year to year; the first lord mayor, Henry Fitz Alwyn, continued in office twenty-three years. The qualifications for

the office of lord mayor are, that the nominee shall be free of one of the twelve principal city companies; have served the office of sheriff (whence the saying, that such an one will be mayor before he is sheriff, meaning deridingly that he is not fit to be either); and be at the time of election an alderman of one of the wards of the city.

The election takes place on Michaelmas day, at a court of hustings held in the Guildhall, under the presidency of the sheriffs. All the aldermen who have not passed the chair, but have served the office of sheriff, are proposed successively in the order of their seniority, and the livery testify, by a show of hands, the degree of favor in which each is held. The sheriffs make a return to the court of aldermen, of the two members of their body, who have united the greatest number of suffrages; and it remains with that court to determine on which of the two the election has fallen. The candidates are not, however, absolutely bound by the show of hands, for it is open to any of them or their friends to demand a poll; a privilege which has, of late years, been frequently exercised.

The lord mayor, though elected by the citizens, must be approved by the king, or as has been invariably the case since Henry III., in the 7th of his charters to the city, permitted the alternative, by the lord chancellor on his majesty's behalf. Although the crown, however, does possess this veto, there is no instance of its having exercised it since the revolution.

The royal approbation having been obtained, the mayor elect, on the 8th of November, takes the oath of faithful administration, in presence of the citizens assembled in the Guildhall; and next day he is finally installed into office, by the barons of exchequer at Westminster.

The titles of right honorable, and lord, are generally believed to have been first given to the mayor of London by Edward III. in the last year of his reign, when a general subsidy was levied, in which individuals were assessed according to their rank and condition in life. The chief magistrate of London was, on this occasion, styled the Right Honorable the Lord Mayor.

The prerogatives of this office are of great extent and importance. As the sovereign's immediate representative, the lord mayor takes precedence of every other subject within the limits of the city. At a grand entertainment given about 1463, by the sergeants at law, at Ely House, Holborn, the lord treasurer, baron Ruthven, refusing to yield the most honorable place at table to the lord mayor, his lordship instantly withdrew, followed by the aldermen, sheriffs, and all the other citizens present on the occasion.

The monarch is, in England, but the first magistrate of a free people, elected by the people; and on his demise the lord mayor of London, as the greatest functionary next to the king, whose power is derived from the same source—as the acknowledged representative of a larger portion of the national will than any other officer of the state—takes the first place in the privy council, until the new sovereign is proclaimed, and, at his coronation, acts as chief butler.

As civil governor of the city, the lord mayor is the supreme head, without whose concurrence no act of the corporation is valid. He is, moreover, within the limits of the city and liberties, perpetual coroner and escheator, and chief justice in all commissions for trial of felony and gaol delivery. He is also judge of all courts of ward-mote for the election of aldermen; conservator of the river Thames and Medway; and perpetual commissioner in all affairs relating to the river Lea. In the military government of the city, his lordship is first commissioner of the lieutenantancy, which is invested with similar powers to those possessed by the lord lieutenants of counties.

The costume of the lord mayor is of a splendor becoming one filling so many high and dignified functions. His constant badge of office is a double chain of gold, or rich collar of SS, with a costly jewel appendant. On state occasions he is habited in a knotted gown, like that of the lord chancellor, or in one of crimson velvet. His more usual vesture is, in winter, a cloth scarlet gown with velvet hood; and, in summer, one of mazarine blue silk; both richly furred. In all processions where he is officially present the city's sword and mace are carried before him. By a grant of Edward III. the mace is permitted to be of gold or silver, a distinction conferred, we believe, on no city of England besides, except the archiepiscopal city of York. When on foot, his lordship's train is supported by a page. When he rides, it is in a state coach, of large dimensions and gorgeous appointments; richly carved and gilt; exhibiting in the pannels a variety of emblematic pictures, and drawn by four horses.

The person of the lord mayor is said to have been formerly held sacred and inviolable, but the instance chiefly relied on by historians scarcely warrants such an inference. It appears that, in the year 1399, Thomas Haunsart and John le Brewere, having forcibly resisted the mayor and sheriffs, in their endeavours to suppress a riot, were apprehended, tried at Guildhall, condemned to die, and beheaded in Cheapside; but it is much more probable that they were convicted for aiding and abetting the riot, than for any personal contempt of the chief magistrate.

A more unequivocal proof of the respect in which the chief magistrate's person was anciently held occurred in 1479, when Richard Byfield was fined £50 for presuming to kneel too close to his lordship at St. Erkenwald's shrine!

The lord mayor is allowed a numerous suite of officers, for the support of his state and dignity; a chaplain, remembrancer, sword bearer, huntsman (called the common hunt), serjeant carvers, serjeants of the chamber, &c. In former times he had also his poet laureate and merry andrew, to assist in the productions of pageants on great occasions; but since these shows have gone out of fashion, neither poetry nor foolery appears to be any longer in request in city halls. On the list of lord mayor's laureates we meet with no less a name than that of Rare Ben; yet so unworthily had his merits been appreciated that, in a letter of that bard's which is still extant, he complains of the corporation for withdrawing

from him their 'chandlery pension for verjuice and mustard.' The pension, however, was not quite so chandlery, for it amounted to £33 6s. 8d. a sum which may at least stand comparison with what has been at any time allowed other laureates of higher degree. It was much more than was allowed even to the king's laureate in Ben Jonson's days; for, till 1630, the pension was but 100 marks, without a sip of the canary.

Previous to the fifteenth century, the lord mayor used to proceed by land to Westminster, to be sworn into office by the king, or, as latterly ordered, by the barons of exchequer; but in 1453 Sir John Norman introduced the custom of going by water. That he meant this aquatic excursion to serve as an emblem of the lord mayor's sovereignty over the Thames, in the same manner as the dukes of Venice used to wed the ocean, though sometimes averred by city poets, we dare not historically affirm; yet it is certain, that the mariners of the Thames felt so highly the honor conferred on their favorite element by Sir John, that they composed a song of triumph on the occasion, in which he thus figures as the hero:—

Row thy boat, Norman,
Row to thy Lemman, &c.

Meaning by 'lemman,' as it would seem, his fair one or bride the Thames.

In 1501 Sir John Shaw revived the custom of riding to Westminster Hall; and, for about two centuries, equestrian cavalcades were the fashion. In the reign of queen Anne the long-neglected barges were recalled into use, and ever since the procession has been by water. In recent times there was an instance of a lord mayor choosing to return by land; but such deviations, unless resorted to occasionally, for the purpose of showing the mere existence of the right, are not perhaps to be commended.

After this species of spectacle had fallen almost for more than half a century into disuse, the common council were all at once seized with a returning fondness for it; and in 1760 came to a resolution, recommending that pageants should be again exhibited for the entertainment of their majesties on lord mayor's day. The recommendation does not appear, however, to have been carried into effect, nor can it well be a subject of regret, that the city magistrates found then, as they have ever since done, more rational methods of manifesting their wealth and spirit.

The manner of celebrating the lord mayor's day at present is still sufficiently splendid to make it an object of attraction to the multitude. About noon, the lord mayor elect, the past lord mayor, the aldermen, sheriffs, and other official dignitaries, after attending divine service at the parish church of St. Lawrence Jewry, proceed in their carriages from the Guildhall to the Three Crane Stairs, where they embark on 'board a magnificent state barge, provided for the use of the chief magistrate; and being joined by the different city companies, in barges of their own, and all more or less gorgeous, the aquatic procession moves forward to Westminster, with bands of music playing, and flags and pendants flying from every mast. When the ceremony in the court of exchequer has been gone through, the civic fleet

returns to Blackfriars Bridge, where the mayor and citizens land, and are received by the Armourers' Company, which takes the lead in the procession back to the Guildhall. The armourers are generally preceded by two or three persons on horseback, in different sorts of showy armour; and these form row by far the most attractive part of the spectacle. The other companies follow on foot; the mayor and sheriffs in their state coaches; the aldermen and other persons of distinction in their private carriages; and these, with their numerous officers and attendants, in their various motley ware, make up what is now called the lord mayor's show.

At Guildhall a sumptuous dinner is provided at the expense of the lord mayor and the sheriffs, which is generally graced with the presence of some of the princes of the blood and ministers of the crown, the foreign ambassadors, and a number of the most distinguished nobility and gentry. Should it be the first lord mayor's day after a coronation, it has been customary for the sovereign himself to honor the banquet by partaking of it. The number of persons invited is seldom less than 1200, and the usual cost of the feast is about £3000. When the king is present the expense is much greater. The entertainment given to George II. cost £4890; and that to George III., which was of singular magnificence, £6898. All the companies give besides sumptuous entertainments at their respective halls, which are supposed to cost £10,000 more.

The festivities of the day, at Guildhall, are concluded by a grand ball, at which the lady mayoress presides. Among the entertainments anciently provided for this part of the evening, the lord mayor's fool had a very singular feat to perform. He was bound by the tenure of his office, to leap in his motley robes into a large bowl of custard, a jest so exactly suited to the taste of former times, that it was not easily made stale.

In 1810 the regular expenses of the mayoralty were found to be about £12,000 and his official receipts, including a sum allowed to him by the city, and the value of some appointments in his gift, did not exceed £6500. The common council, on receiving this report, voted an additional allowance of £1500 per annum.

The city *remembrancer* is the lord mayor's monitor; a part of his duty being to remind his lordship of the days on which he has to proceed with the aldermen on city business. He is also a guardian of the city rights, and is appointed to attend the sittings of parliament, to see that the privileges of the city are not infringed, or its interests injured by the proceedings of the legislature.

Sword bearer.—The sword is an emblem of authority as well as of justice, and is borne before the lord mayor to express that they are both united in his office. A writer on armoury, who distinguishes how swords of state should be borne before persons of different ranks, says that 'the city sword bearer must carry the sword upright, the hilt being holden under his bulk, and the blade directly up the midst of his breast, and between his brows.' The sword bearer has his table at the expense of the lord mayor, to whom

£1000 a year is allowed for the purpose, exclusive of a sum of money for the residence of the sword bearer.

Aldermen.—The division of the city into wards, and the appointment of aldermen to govern them, were undoubtedly, as before observed, of Saxon origin; but it would seem not to have been long before the office assumed a character somewhat foreign to the genius of Alfred's institutions. So wise a prince could not have intended that an office of this importance should be filled without any regard to merit or capacity; and yet almost the first thing we read of the office is, that it might be acquired by any one, either by inheritance or purchase. So much, indeed, was this the case, that the wards were called after their respective proprietors, and changed names as they changed; thus the ward of Castle Baynard was once called Simon Hade-stock's Ward; the ward of Cheap, Henry de Frowycke's Ward; the Tower Ward, William de Nadestocke's Ward, &c. The abuses which necessarily arose, from this proprietary system, led to repeated efforts on the part of the citizens to change the tenure of the office; and at length, from one of those coalitions between the crown and the people which are not uncommon in the history of revolutions, the right of property was in the reign of Edward II. wrested from the aldermen, and the citizens of each ward were declared to have the power of electing annually the alderman who was to preside over it. So frequent an exercise, however, of the elective privilege, had also its peculiar inconveniences; and in 1394 it was ordered by parliament that in future the alderman should continue in office during life or good behaviour, and so the law still continues.

In elections for aldermen, the right of voting is confined to freemen who are resident householders of the ward paying scot and lot, and an annual rent of not less than £10 a year.

It is not necessary, however, that the person elected should be a resident of the ward. Citizens of eminence often become candidates for the aldermanship of wards with which they have previously had no particular connexion. Should a person decline the office of alderman when elected to it (which is, however, rarely the case) he may be fined; there is even a precedent for imprisonment.

Each alderman has the active direction or wardenship of the affairs of his ward, under the general superintendence of the lord mayor; and is assisted by one or more deputies, appointed by himself from among the common councilmen of the ward. Every ward, too, has its court of wardmote or common hall, with which the alderman may advise on all matters touching the common welfare.

The privilege of acting as magistrates in the city was formerly confined to the lord mayor, the recorder, the aldermen who had passed the chair, and the nine senior aldermen below it; but in the year 1741 George II. by letters patent empowered all the aldermen of London, without distinction, to act in future as justices of the peace within the city and its liberties.

The dignity of alderman, like that of the lord

mayor, had once more than ordinary protection, and in those turbulent times, when personal feeling and resentment usurped the place of law and justice, it is recorded that a citizen was imprisoned and his right hand cut off for assaulting an alderman. Resistance to the authority of an alderman was commonly punishable with the loss of freedom, and imprisonment for a year and a day.

The costume of the aldermen is a cloth gown of violet or scarlet, lined with silk or furred according to the season. On one occasion an alderman, who neglected to line his cloak according to the established mode, was condemned by his brethren to a summary punishment, amusingly characteristic of the claims of this respectable body to the character which Shakespeare has given of them, as being with fat capon lined. They decreed that the whole court should go and breakfast with him.

Wards.—The city and liberties are divided into twenty-six wards or aldermanries; which, considered with respect to the number of members they respectively return to the common council (excepting Bridge Ward without, which has no representatives), rank in the order in which we shall here take notice of them. The number of councillors for each ward is denoted by the numbers within a parenthesis.

The wards of Farringdon within and without formed originally but one ward, the aldermanry of which was purchased by William Faryngdon, goldsmith, and sheriff in 1279, and remained in his family for upwards of eighty years. The tenure by which it was held was, the presentation at Easter of a slip of gilliflower, then a flower of considerable rarity. In consequence of a great increase in the population of this portion of the city, it was, in the seventeenth of Richard II., divided into two wards, and a separate alderman assigned to each. Farringdon Within (seventeen common council-men) comprehends that part of the city which lay immediately within the walls on the western side. Its locality is well marked by a small stone monument in Pannier Alley, representing a young Bacchus seated astride a pannier or basket, with this inscription underneath,

WHEN YE HAVE SOUGHT
THE CITY ROUND,
YET STILL THIS IS
THE HIGHEST GROUND,
AUGUST THE 27,
1688.

Farringdon Without (sixteen) includes all that part of the city which lay without the walls to the westward, as far as Temple Bar. Till 1484, Serjeants' Inn was called 'Faryngdon's Inn.'

Bridge Ward Within (fifteen) is of extensive limits; and includes the spot 'Where London's column, pointing to the skies,' does not lie so utterly as Pope's lines have made it the fashion to believe. It was one of those wards entirely destroyed by the fire; it takes its name from London bridge, the whole of which from the Southwark end it includes.

Bishopsgate Ward derives its name from the

gate which formerly divided it, and which is supposed to have been constructed by some of the earlier bishops of London. Though the gate no longer exists, yet the boundary is still marked by the appellations of Bishopsgate Within and Bishopsgate Without. The buildings in this ward are among the most ancient of the metropolis, the great fire not having extended its ravages far in this direction, and not at all to the parts without the gate. During the course of more than a century, every alderman who has presided over this ward has served the office of lord mayor.

Bread Street Ward (twelve), which is nearly in the centre of the city, takes its title from the bread market, which formerly stood on the present site of Bread Street: for, in ancient times, the bakers of London were not allowed to sell bread in their shops or houses, but only in the open market. At a still earlier period, this ward appears to have been the domain of that notable hero of fable, Gerard the Giant. In Gerard's Hall (now occupied as an inn) there was kept, for a long time, an immense fir pole, some thirty or forty feet long, with which this redoubtable monster used to sally forth to battle, as also a ladder by which he occasionally permitted the pigmy order of mankind to ascend to the top of his faulchion, to take a bird's-eye view of the metropolis! Stowe has made sad havoc with this pretty story. 'Gerard's Hall,' he says, 'is a corruption of Gisor's Hall, once the property of John Gisors, mayor of London in 1311; the giant's faulchion, nothing but an old Maypole; and the ladder, the same which was used to deck the said Maypole, when erected on the green.'

Cheap Ward (twelve) takes its name from the Saxon word chepe, a market; applied to our present Cheapside, which was formerly called 'West Chepe,' to distinguish it from another market in East Cheap. Before the stream, called Walbrook, which intersects this ward, was covered in, it is said, that barges used to be towed up it, from the Thames, as far as Bucklersbury. The Standard or Cross, in Cheap, is familiar to the readers of history, as the ancient place for execution within the city.

Tower Street, Broad Street, and Cripplegate, wards hold the same rank in the city representation as those of Bread Street and Cheap, each returning twelve members to the common council.

Langbourn Ward (ten) takes its name from a brook which formerly ran from Fenchurch Street, where it broke out, to the Thames. The stream spread so much near the head of the spring that the neighbourhood received the name of 'Fenny-about,' and this circumstance is still perpetuated in Fenchurch Street.

Castle Baynard Ward (ten) takes its title from the ancient castle of that name, which stood on the site of the present Cannon Wharf, and was originally built by William Baynard, a soldier of fortune, who accompanied the Norman William to England. It passed afterwards into the hands of the Fitzwalters, who occupy a prominent part in the early history of London. They possessed in virtue of this castellary the

honor of being hereditary standard bearers of the city. When in times of war the banner of St. Paul was unfurled, it was consigned with great ceremony by the lord mayor and aldermen to the hands of the knight of castle Baynard, at the great west door of St. Paul's, the mayor addressing him in these words: 'We give you, as to our Banneret of fee in this city, the banner of this city to bear and govern to the honor and profit of this city, to your power.'

Castle Baynard was entirely destroyed in the great fire of 1666, but before that had become greatly dilapidated.

Billingsgate Ward (ten), which 'the ladies of the British fishery,' as Addison has humorously designated them, have rendered of such notoriety, boasts of having had for alderman the patriotic Beckford.

Vintry Ward (nine) comprises a part of the north bank of the river Thames, where the merchants of Bourdeaux formerly bonded and sold their wines.

Dowgate Ward (eight) take its name from dwyr-gate, the ancient water gate, which is by Stowe supposed to have been the Watling Street ferry across the Thames. The patriotic Sir John Barnard was alderman of this ward.

Candlewick (now Cannon) Street, the name of which is preserved in the ward of the city (eight) was formerly much occupied by wax and tallow chandlers, trades of some importance in London, until the year 1548, when, by order of Henry VIII., the burning of candles in the church on Candlemas day was ordered to be discontinued.

Cordwainers' Ward (eight) derives its title from Cordwainers' Street (now Bow Lane), which formerly was a great mart for curriers, shoemakers, and other workers in leather.

Walbrook Ward (eight) was so called from the brook which intersected the city wall at Dowgate, and flowed into the Thames.

Aldersgate Ward (eight) takes its name from one of the oldest gates of the city, and, like that of Bishopsgate, includes streets and lanes both within and without the walls.

Cornhill Ward (six) took its title from the corn market, formerly held in this street, or rather in the church-yard of St. Michael's, adjacent to it.

Aldgate Ward (six) consists of a soke, which was originally attached to the gate of that name, on the east of the city. When Matilda, or Maude, the queen of Henry I., founded the priory of the Holy Trinity, called Christ Church, on the ruins of which the present St. James's church, Duke's Place, was erected, she assigned for its support, with the consent of the king, her husband, the port and soke of Aldgate. The priors do not appear, however, to have ever claimed, or been admitted to a place among the magistracy of the city, on account of the soke-manry; but having afterwards obtained a grant of the Knights Guild, a lay corporation, since better known by the name of Portsoken Ward, the prior of Christ Church became, in virtue of that knighten guild, an alderman of the city. When he sat or rode with the alderman, he doffed his spiritual habiliments, and wore the

costume of his lay brethren. Eustacius, who was prior in 1264, having some scruples about this occasional divestiture, appointed Theobald Fitz Jocan to be the alderman of Portsoken Ward, under him. It is in allusion to this duality of office that in the inscription over the door on the north side of the chancel of St. James's church, Duke's Place, 'consecrated,' as we are told, 'to the eternizing the memories' of the worthies by whom it was erected, the parish clerk (for who else could pen such strains?) thus proceeds:—

And, since I touch antiquity so near,
Observe what notes remarkable appear;
An alderman of London was, at first,
The prior of this church; falling to th' worst,
'Tis new raised by th' encouragement and care
Of a lord mayor of London, which is rare.

Queenhithe Ward (nine) takes its name from the harbour of Queenhithe, which was formerly a principal place for loading and unloading goods, and was so called because the customs payable there were assigned by king John to Eleanor his queen, and to her successors in the queenly dignity, for their own separate use. The ground, for a considerable space around the harbour, formed a soke which was governed by the queen's bailiffs. In the time of Henry III. it came into the hands of Richard, earl of Cornwall, who conveyed it for an annuity to the mayor and commonalty of London.

Coleman Street Ward (six) is supposed to derive its name from a family of the name of Coleman, who lie buried in the church of St. Margaret, Lothbury. Stowe and his continuators suppose the first of the Colemans to have been a builder; but is it not as probable that he might have purchased the Aldermanry, and given his name to it, as William Faryngdon did to the wards of Farringdon?

Portsoken Ward (five) is situated beyond the ancient city walls, and is of considerable length, extending from Aldgate to Whitechapel Bars, and from Bishopsgate to the river. The origin of the ward of Portsoken, which signifies 'franchise at the gate,' is by Stowe ascribed to the age of king Edgar. He relates that thirteen knights or soldiers, who were well-beloved by the king for services they had done, besought from him the grant of a portion of land on the east of the city, which had been left desolate and forsaken by the inhabitants 'by reason of too much servitude,' with 'the liberty of a guild for ever.' The king granted their request, on condition 'that each knight should victoriously accomplish three combats; one above the ground, one under ground, and the third in the water; and after this, at a certain day, in East Smithfield, that they should run with spears against all comers; all which,' adds Stowe, 'was gloriously performed. The king accordingly incorporated the knights, by the name of the Knighten Gild.' The southern boundary of the ward was fixed in a manner as singular as the conditions on which the whole was granted; it was to extend as far into the Thames as a horseman, riding into the river at low water, could throw his spear. This grant of Edgar to the knights was confirmed by Edward I.

the Confessor, and afterwards by William Rufus, and Henry I. During the reign of the latter monarch, in 1115, the brethren of this guild, who were then called 'burgesses of London,' gave the entire soke and its appurtenances to the church of the Holy Trinity, within Aldgate; and the whole possessions of the guild were afterwards by royal charter confirmed to the brotherhood of that church, the prior of which was invested with great ceremony, and allowed to govern the ward, and exercise the duties and participate in the honors of an alderman of London. Since the suppression of the monasteries, however, the ward of Portsoken has had a lay governor, in the person of its alderman.

Lime Street Ward (four), though without a church, or a complete street, runs through several parishes. It is so small, and used to be thought of so little account, though now the seat of as much wealth as any ward of the city, that in 1371, when the city was assessed in £635 12s. for the war in France, the proportion required from Lime Street ward was only £1 14s. It is generally said to have derived its name from being a place for 'the making and selling of lime;' but the conjecture, we suspect, has no other authority than the identity of the name. The circumstance of the ward's running stragglingly through so many parishes is opposed to such an origin; besides, lime was not a commodity in such general use, five centuries ago, as to give a name to a market. May the ward not have had as sylvan a parentage as the village of Limehouse, which is a corruption of Limehurst, the Saxon term for a grove of lime trees? It is not more unlikely that the manor of Leadenhall, which lay chiefly in this ward, should of old have boasted of its limes, than that that present sink of filth and wretchedness, Petticoat Lane, should once have been, as thus described by Stowe; with 'hedge rows and elm trees on both sides,' and 'pleasant fields to walk, insomuch that gentlemen used to have houses there for the air.'

Bassishaw Ward is the smallest ward in the city; its name is a corruption of Basinges-haugh or hall, a large mansion, formerly belonging to the Basinges, a family, as Stowe assures us, of 'great antiquity and renown.' In the reign of Edward III. Basinghall became the residence of Thomas Bakewell, who gave it his name; and, in the succeeding reign, it was purchased by the city, together with another house, two shops, two gardens, and other appurtenances in the adjoining parishes of St. Laurence and St. Michael, for the small sum of £50. It was converted by the city into an exclusive market for the sale of woollen cloth, under the name of 'Blackwell Hall,' and its privileges secured by severe penalties. The whole of Bassishaw Ward is comprised in the two precincts of Basinghall Street.

Bridge Ward, without, includes the principal part of the borough and liberties of Southwark, and a much larger population than any of the other wards; it gives also the title of 'Father to the City,' to the alderman who rules over it; and yet it is totally unrepresented in the court of common council. Southwark, although so long annexed to London, has never been incorporated with it; its civil government is managed by a

bailliff appointed by the court of mayor and aldermen; and the office of alderman, being a mere titular sinecure, is always given to the senior alderman of the city, as the best entitled to enjoy the *otium cum dignitate*.

The court of lord mayor and aldermen, besides having the power of appointing the recorder and several other city officers, and suspending them for misconduct, possesses also a considerable portion of the executive authority, for by this court all leases and other instruments that pass the city seal are executed.

The court of aldermen is not an open court, but its proceedings on political questions, or any others of general interest, invariably transpire; and, indeed, while the press possesses as it does at present the eyes of Argus, with the hands and heads of Briareus, it is difficult to conceal any subject of importance from the public.

According to the institutions of Alfred, the sheriffs throughout the whole kingdom were elected annually by the community at large; in the counties by the freeholders, and in London by the citizens, without distinction. This privilege however has been often invaded. The freeholders of Middlesex, for example, were arbitrarily deprived of their right of appointing their own sheriff, when Henry I. transferred it in perpetuity to the corporation of London; and the citizens of London themselves paid to king Stephen 100 marks of silver for the right of nominating the sheriffs for the city and county of London. But, when the more general usurpation of Edward II. took place, the sheriffalties of London and Middlesex were the only ones exempted.

For a considerable time the right of voting for sheriff remained, as at first, with the general body of the citizens; but a change to a more manageable order of things was desired, and the mayor began accordingly with summoning, to the meeting for the election of sheriffs, only a few of the 'wealthiest' and 'discreetest' men out of each ward; 'sometimes more, sometimes less.' This select number he was pleased to style 'the commonalty.' At first the number of select citizens summoned from each ward was only two; but, in the sixth of Edward II., we find that it had been increased to twelve. This increase led, however, to some apprehensions for the stability of the system, and the number was again reduced in most of the wards; in some to ten and eight, and in the smaller wards to six. The commonalty of London having at length found favor at court, by the services which they rendered in elevating Edward IV. to the throne, that monarch so far restored the election of sheriffs to its ancient footing as to direct that it should in future be vested in the mayor, aldermen, common council, and liverymen of the different companies; and thus it has remained to the present day.

A mere freeman of London is excluded from voting: he must have taken up his livery to be entitled to the privilege. An unsuccessful effort was made, in the time of the commonwealth, to have the election thrown open to all freemen; but the limitation appears ever since to have had the sanction of popular approbation. The election, as it now stands, is certainly on a broad

enough basis, for every useful purpose. When 7000 or 8000 resident liverymen can be polled, at a disputed election, the addition of 1000 or 2000 votes of mere freemen might oftener endanger than strengthen the popular side of a question.

After the mayors had been thus deprived of the absolute appointment of the sheriffs, the citizens allowed them, out of courtesy, to *nominate* one of the sheriffs. So far did the citizens carry this courtesy of theirs, that, from the days of Edward IV. to the year 1641, they appear never once to have rejected the sheriff nominated, or, as the fashion was, drunk to, at some previous city feast, by the lord mayor for the time being.

From so invariably approving for so long a period of the mayor's nomination, it is not surprising that it should at last have been considered as a matter of course, that the person drunk to by his lordship should be one of the sheriffs. So much was this the case, that, in the time of queen Elizabeth, there are instances of the mayor's nominee signing the usual bonds to hold the office before he was confirmed by the livery. When at length, however, the open attempt of Charles I. to establish despotism in the country made it of importance to shut up every avenue to undue influence, the citizens showed that they had not forgotten that the right of rejecting the nomination of the mayor was one which they might still exercise. From 1641 to 1663 they uniformly rejected the person nominated by the mayor, and appointed two sheriffs of their own selection. The Restoration having brought for a time courtesy again into fashion, the lord mayor's nominees were for many years, with but one exception, confirmed by the livery. In 1680 the citizens again made their own choice. They rejected the nominee of the lord mayor, and chose Slingsby Bethel and the unfortunate alderman Cornish as sheriffs, both of them persons distinguished for their opposition to the court. It was during their sheriffalty that lord Stafford was condemned to the block, for his supposed share in the popish plot; and the sentence ordered to be executed with all those horrid aggravations, the stain of which it remained to the present age to remove from the statute book. The king thought fit to commute the sentence into beheading merely; the sheriffs Bethel and Cornish protested against the right of the king to order any such mitigation of the sentence; and it was not till the house of commons had declared that they would be 'content' with the head of their victim, that the sheriffs yielded the point.

The court party having, in the interval between the election of these sheriffs and the election of mayor, mustered in unusual strength, they succeeded in raising to the mayoralty Sir John Moore, a person so completely under Mr. Secretary Jenkins's management, that it was resolved to push the old usage about the nomination of sheriffs to its utmost possible extent. 'When the day came,' says Burnet, who relates the facts with great impartiality, 'in which the mayor used to drink to one, and to mark him out for sheriff, he drank to North, a merchant, that was brother to the chief justice. Upon that, it was

pretended that this ceremony was not a bare nomination which the common hall might receive or refuse, as they had a mind to it; but that this made the sheriff, and that the common hall was bound to receive and confirm him in course as the king did the mayor. So he claimed it on Midsummer-day, and said the common hall were to go and elect one sheriff, and to confirm the other that had been declared by him. The hall on the other hand said, that the right of choosing both was in them. The old sheriffs (Pilkington and Shute) put it, according to custom, to a poll; and, it was visible, the much greater number was against the lord mayor. The mayor on this adjourned the court, which, they said, he had no power to do, and went on with the poll. There was no disorder in the whole progress of the matter, if that was not to be called one. But, though the mayor's party carried themselves with great insolence to the other party, yet they showed on this occasion more temperance than could have been expected from so great a body, who thought their rights were now invaded. The mayor upon this resolved to take another poll: and it was resolved that his poll should be that by which the business should be settled: and, though the sheriff's poll exceeded his by many hundreds, yet order was given to return those on the mayor's poll, and that they should be sworn. Box, who was chosen, however, had no mind to serve upon so doubtful an election. So it was necessary to call a new common hall and to proceed to a new election: and then, without any proclamation made as was usual, one in a corner, near the mayor, named Rich, and about thirty more applauded it; those in the hall, that was full of people and of noise, hearing nothing of it. Upon this it was said that Rich was chosen without contradiction, and so North and Rich were returned and sworn sheriffs for the ensuing year.

The court was not even satisfied with thus forcibly depriving the citizens of the appointment of their sheriffs; for, with singular wantonness, they prosecuted Pilkington and Shute, and twelve aldermen and principal citizens of the popular party, for opposing the usurpation of the mayor; and having new juries, as well as judges, at their command, had them condemned in large fines.

One of the earliest victims to this new mode of appointing sheriffs was the illustrious Russel, who observed, in his dying moments on the scaffold, 'that, from the time of electing sheriffs, he concluded the heat in that matter would produce something extraordinary, and was not much surprised to find it fall upon him.'

The livery recovered entirely the right of election, however, at the revolution. Not long after, indeed, Sir John Parsons, who was mayor in 1704, revived the custom of nominating persons for the approbation of the livery, and ever since the election of sheriffs has been thus conducted; but so abundantly qualified is the power now conceded to the mayor, that the exercise of it has become altogether harmless. His lordship usually nominates not fewer than fourteen respectable citizens for the office of sheriffs; but the livery are not bound to approve of one of them, and

have often appointed others of their own selection. Any person being a freeman of London is eligible to the office; and whoever is elected is bound to serve, unless he can swear that he is not worth £15,000. The penalties for refusal are £400, to be paid into the city chamber, and £13 6s. 8d. to the ministers of the city prisons. A citizen, after payment of these fines, is exempted for three years; but an alderman only for one: no person, however, after being once drunk to by the lord mayor, can be drunk to again by any subsequent mayor, unless he becomes an alderman. Whoever serves is obliged to give a bond to the corporation for £1000.

The election of sheriffs takes place annually on Midsummer day, and they come into office at Michaelmas. When chosen, they are sworn into office at Guildhall, and two days afterwards in the court of exchequer at Westminster Hall, a ceremony which, though much ridiculed on account of the supposed test of the sheriff's talents in counting hobnails and chopping of sticks, is solemn and impressive. These services are of feudal origin, and respect the possession of lands in St. Clement's Danes. The usual process now is, when the sheriffs are in attendance at the exchequer to be sworn, the owners of the land are called to do their suit and service, when an officer of the court, in the presence of the senior alderman, produces six horse shoes and sixty-one hobnails, which he counts over in form before the cursitor baron, who on this occasion is the immediate representative of the sovereign. The chopping of sticks originated in a similar manner. The tenants of a manor in Shropshire, held by the city of London, are called upon to do their service, when the senior alderman below the chair steps forward and chops a single stick, in token of its having been customary for the tenants of that manor to supply their lord with fuel. For the duties of the SHERIFF, see that article.

The recorder of the city of London is appointed by the lord mayor and aldermen for life. The qualifications declared in the city books to be essential to the office are, that 'he shall be, as he is wont to be, one of the most skilful and virtuous apprentices of the law of the whole kingdom: a chief man, endued with wisdom, and eminent for eloquence.' He is the first law officer of the city, chief councillor to the magistracy; himself a justice of peace for the city, and one in all commissions of oyer and terminer. When on the bench, he delivers the sentences of the court; he also reads the addresses of the city to the king, and reports to his majesty, after each session of the Old Bailey, the number of persons capitally convicted. In point of rank, he takes the precedence of all aldermen who have not passed the civic chair. A singular instance of the difference in the value of money, and the salaries of public officers, is exhibited in the pay of the recorder. In the reign of Edward I. it was 'only £10 sterling, by the year,' and 'twenty pence for each charter written, and each testament enrolled.' It was afterwards raised to 100 marks, and has since gradually advanced to its present liberal allowance of £2500 a year.

The mayor of the city was originally *chamber*

lain, and the office was held of the crown. In 1204 the right of appointing to the chamberlainship was purchased from the crown; and the office became ever after distinct from that of mayor. The chamberlain ranks next to the recorder in the order of precedence; he is the city treasurer, and receives all the money belonging to the corporation; he has also the charge of all its bonds and securities. The chamberlain is usually selected from such aldermen as have passed the chair. The livery have the appointment of the office; but, though the chamberlain is annually chosen on Midsummer-day, yet he generally continues to hold his situation during life.

The origin of the *common council* has been partly developed in tracing the history of the sheriffs. The custom of summoning certain of the discreeter and wealthier men of each ward, as representatives of the commonalty, which was at first surreptitiously introduced for the purpose of restricting the right of electing the sheriffs, was afterwards continued for better purposes in the establishment of that body, known by the name of the common council. However expedient it might be that the whole body of the citizens should be convened for the election of their principal magistrates, the mayor, sheriffs, chamberlain, &c., and on other extraordinary occasions, for the manifestation of the general will, it was obviously not of equal expedience that they should meet on every matter of ordinary concern. By an act of council of the 6th October, 1692, it was declared, 'that it is, and anciently hath been, the right and privilege of the freemen of the said city, only being householders paying scot and bearing lot, and of none other whatsoever in their several and respective wards, from time to time, as often as there was or should be occasion to nominate aldermen and elect common councilmen for the same respective wards;' but it is not affirmed, for that would have been to affirm what was contrary to the fact, that the right and usage had been the same. Neither is it all householders who have now the privilege of voting for common council-men; for, by act of parliament passed in 1725, it is restricted to those who occupy a house of the annual value of £10.

When the right of electing the common council-men thus reverted to the freemen of the different wards, the rule which the mayors had last observed with respect to the number summoned from each, and which, as we have before seen, had some regard to their relative population, appears to have been adhered to with but few variations. The number is at present fixed at 236 for the whole of the wards; in 1209 it was but thirty-two. Farringdon within, which returns the largest number, has seventeen representatives; Lime Street and Bassishaw but four. The office of common council is annual, and instances of removal are not infrequent. The election for each ward takes place on St. Thomas's day; the alderman as presiding officer, decides on the reception of disputed votes, and declares the return.

The representatives of the wards, being united to the lord mayor and aldermen, constitute what is called the court of common council.

This court has the entire disposal of the funds of the corporation; makes what bye-laws it thinks necessary for the better regulation of its concerns; and possesses the right of nomination to several of the subordinate city offices. It has no stated periods of meeting, but is convened by the lord mayor whenever he sees occasion.

The *common serjeant* is the second law officer in the city, and assists the recorder in all legal questions affecting its interests; he also acts in a judicial capacity, as an assistant to the recorder, to whose office his own is generally probationary. He is usually chosen from one of the city pleaders; but the right of election is vested in the common council, who have sometimes raised to the office individuals who had no connexion with the city. It is the duty of the common serjeant to attend the lord mayor and court of aldermen, both in council and on court days, on all occasions, whether within or without the precincts of the city. To him are committed the general care and management of the orphans' estates until they have passed the lord mayor and court of aldermen.

Common Hall.—In all the earlier charters of the city of London, the freemen are spoken of in a general sense; not, as since distinguished, by the different appellations of freemen, liverymen, and common council-men, but as the 'citizens of London,' 'men of London,' 'the commonalty at large.' Nothing at all is said of councils, or any thing in the shape of a representative body. The only public bodies, on the contrary, which are mentioned in the great confirmatory charter of Henry I., are the court of hustings, composed of the mayor, aldermen, sheriffs, and recorder; and the folk-mote, or folk-meeting, meaning obviously the people in the aggregate.

The usual mode of electing these folk-motes was by the tolling of a great bell, which was hung in a belfry near the east end of St. Paul's church. The name of folk-mote was subsequently changed to that of common-hall; and the right to a vote in it restricted to the livery.

The more usual purposes for which common-halls are now assembled are the election of the lord mayors, sheriffs, and other officers, whose nomination remains with the livery; but they are also frequently convened, in order to take into consideration measures of the government or parliament, affecting the interests of the country or of the city in particular; and still, as of old, the resolutions of the livery of London continue to have a leading influence in giving a tone to national opinion.

The *city companies*, though branches of the general corporation, have each a distinct government, and peculiar liberties and privileges granted to them by their respective charters. Most of them have separate halls for their place of meeting, either to transact business or for their banquets; and each company has a master, wardens, assistants, clerks, and other subordinate officers, for the general management and government of its affairs.

The companies are nearly 100 in number; and their several rights and privileges would fill a volume of ample size; we can only here add, that there are twelve which are called the principal.

and sometimes styled honorable, though there are some of the minor order, such as the Stationers' Company, which rival them in real importance. The twelve are, the mercers', grocers', drapers', fishmongers', goldsmiths', skimmers', merchant tailors', haberdashers', salters', ironmongers', vintners', and cloth workers'. The lord mayor elect must always belong to one of these companies; if not at the time of his election, at least before he is sworn into office.

There are no less than forty-nine halls belonging to the incorporated companies of traders and artisans, city of London. Many of these may be found interesting objects to strangers, either for their architecture, or their magnitude, and expression of opulence. Among the best are ironmongers' hall, in Fenchurch Street; merchant tailors' hall, in Threadneedle Street; goldsmiths' hall, in Foster Lane; grocers' hall, Grocers' Hall Court, Poultry; drapers' hall, Throgmorton Street; stationers' hall, Stationers' Court, Ludgate Street; and apothecaries' hall, Blackfriars.

The citizens constituting these societies never forget, in the midst of their abundance, the wants of others. The sums distributed annually to the indigent, by the city companies, from various funds given for the purpose, amount to above £30,000.

ECCLESIASTICAL GOVERNMENT.—In the list of ecclesiastics who formed the second general council held at Arles, in France, in 326, we have the presence of a bishop of London recorded in these terms: 'Ex Provincia Britannie Civitate Londinensi Restitutus Episcopus.' Joceline of Furnes, in his book of British bishops, says, that this Restitutus was the twelfth bishop of London; but little dependence can be placed on the accuracy of his list. In 610 London was, however, anew erected into a bishop's see, and St. Paul's cathedral founded.

Of the bishops who filled this see, till the arrival of the Normans, the only one whose name still lives in the memory of men was the noted St. Dunstan. No less than three churches in and around London have been dedicated to him.

William, the first bishop under the Norman line, was held by the citizens of London in grateful remembrance for many centuries, for his good offices in prevailing with William I. to grant them the ample recognition which he did of their ancient rights and franchises. His remains were interred in St. Paul's cathedral, and a monument erected to his memory by the corporation, on which they inscribed in warm terms the obligations which he had conferred on the city—

Reddita libertas duce
Te; donataq; multis,
Te duce, res fuerat
Publica muneribus.

For a long time the corporation made it one of their principal duties, on lord mayor's day, to do homage at the shrine of this restorer of their liberties.

Gilbert Foliot, who succeeded in 1163 to the bishopric of London, is described as the first English bishop that was ever canonically translated from one see to another.

In 1292 there occurred a remarkable instance of collision between the claims of the bishop of this diocese and the citizens. The bishopric had a manor attached to it, situated in the parish of Stepney, on which there grew 'two faire woods.' Richard de Gravesend, the bishop at that period, wished to enclose these woods for a deer park, and with that view obtained a grant of free warren from the king. The mayor, aldermen, and commonalty, however, would not permit the project to be carried into execution, contending successfully that time, out of memory, 'they had used to take and hunt within the aforesaid woods and without, hares, foxes, conies, and other beasts, where and when they would.'

In 1376 Wickliff was, by the command of the pope, summoned before the archbishop of Canterbury and bishop of London, to answer for the tenets contained in what was called the Lollards' Creed; he appeared before them, accompanied by his friends and protectors, the duke of Lancaster and earl marshal.

The duke is said on this occasion to have threatened to drag the bishop by the hair of the head out of the church; when a crowd of citizens interposed, to protect the latter from the execution of this indecent threat; and the duke and earl marshal were glad to retreat.

At the council of Constance, in 1414, Robert Clifford, bishop of London, and several other eminent ecclesiastics, attended as the representatives of the Church of England. He was one of the thirty cardinals-extraordinary created on that occasion, and was even nominated to the purple on the deposition of the three rival popes of that period, but lost the election, which terminated in favor of cardinal Odo Calonna, pope Martin V.

Henry VIII. gave to this diocese the equally sanguinary Bonner. On the establishment of the reformed religion, under Edward VI., he was displaced by the pious Ridley; but on the restoration of popery, under Mary, the 'high priest of blood, as he had been well named, was reinstated in the see, and Ridley exchanged his mitre for a crown of martyrdom. When Elizabeth came to the throne, Bonner was among the bishops who hastened to tender their allegiance to the new queen, as she was on her way from Hatfield to London; but her majesty, shocked with the recollection of his cruelties, refused to see him. He was degraded from his office and thrown into the Marshalsea, where he perished miserably.

John King, who was promoted to be bishop of London by James I., was remarkable for his eloquence in the pulpit, and hence styled by that facetious monarch the king of preachers. His successor (George Mountain) was of name still happier in a punning age; for it is said to have enabled the king to effect a miracle, by throwing a mountain into the sea. (see)

The next bishops of London were Laud and Juxon.

In the Catholic reign of James II. Henry Compton, bishop of London, was styled, by way of pre-eminence, the Protestant bishop, on account of the noble stand which he made in defence of the rights of the Protestant

church against the encroachments of that prince.

Among the bishops of London, since the restoration, the names of Sherlock, Lowth, and Porteus, have been justly distinguished for those qualities which, in times of domestic peace and tranquillity, do most honor to the clerical character, learning, and piety.

The bishop ranks, in dignity, next to the archbishop of Canterbury and York. The diocese comprehends not only Middlesex, Essex, and part of Hertfordshire, but the British plantations in America. The following parishes in the city are, however, exempt from the bishop's jurisdiction, being peculiars, under the immediate government of the archbishop of Canterbury. viz. Allhallows, Bread Street; Allhallows, Lombard Street; St. Dionis, Back church; St. Dunstan in the East; St. John the Baptist; St. Leonard, Eastcheap; St. Mary Aldermay; St. Mary Bothaw; St. Mary le Bow; St. Michael Royal; St. Pancras, Soper Lane; and St. Vedast, Foster Lane. The chapter consists of the bishop, a dean, a precentor, or chanter, a chancellor, a treasurer, five archdeacons (styled of London, Middlesex, Essex, Colchester, and St. Albans), thirty canons or prebendaries, twelve minor canons, six vicars choral, a sub-dean, and other inferior officers.

The election to the bishopric, in cases of vacancy, is vested in the dean and chapter; but the right is now reduced to a mere matter of form, the person recommended by the king's writ of *congé d'elire* being invariably chosen. The sum at which the see is entered in the king's books is £1000; but it is estimated to be worth, at least, £12,000 per annum.

St. Paul's Cross stood in the midst of the church yard, on the north side towards the east end. Of the period of its erection we have no account; Stowe says, it was of 'unknown antiquity.' The first mention made of it is in 1259, when a folk-mote was assembled at Paul's cross, to hear the complaints that had been made to the king against the mayor and rulers of the city. It appears to have consisted of a hexagonal pulpit of wood, raised upon a flight of stone steps with a leaden canopy surmounted by a large cross. In the picture, in the Society of Antiquaries, mentioned in the preceding article, it is represented as enclosed by a low brick wall, within which there are people taking notes of the sermon. The greater part of the audience sat or stood in the open air: but there were probably, as on the occasion of king James's visit, covered galleries for the accommodation of more distinguished auditors, such as, the members of the royal family, the nobility, the lord mayor and aldermen. At the side of the church there was a covered space, called the shrouds, to which the preacher and congregation both resorted in inclement weather.

The cross was demolished in 1643, by an order of parliament, and was never after restored.

PART V.

COMMERCE, MANUFACTURES, POLICE, &c.

At what period London became celebrated for its commerce is uncertain; Tacitus says, in his

time it was 'a famous mart of foreign and domestic trade;' and, as the Romans were no encouragers of trade; it is not improbable that an active intercourse with the Phenicians, and the Greek colony at Marseilles, might have been carried on by the Londoners long before. With the arrival of the Romans, the foreign commerce of London appears to have fallen, and we have scarcely any record of its existence for some centuries afterwards. In the middle of the fourth century, however, its trade must have become pretty extensive, as 800 vessels were employed in the exportation of corn only.

After the Romans had quitted it, the foreign trade was for some time almost wholly suspended; nor was it until some time after the Norman invasion that it was revived. Fitzstephen, assures us, however, that in his day 'no city in the world exported its merchandise to such a distance.'

Previous to 1268 the Cologne merchants had established themselves in London; and in 1296 a regular commercial company, under the title of merchant adventurers, was incorporated by Edward I. This company, obtaining permission from the duke of Brabant, joined an establishment at Antwerp, where they carried on an extensive manufacture of cloth from wool imported from this country. Edward III., with true national feeling, seeing that England derived but half the advantage from her industry, caused manufactures to be established here, prohibited the exportation of wool, and, producing finer cloths than were to be met with elsewhere, monopolised the principal woollen trade of Europe.

The merchants of London now became too formidable to be kept down by the jealousies of the Genoese and Hanseatic associations, although, in the year 1412, the former had the audacity to seize a quantity of wool and other goods to the value of £24,000, which had been shipped on board several vessels for the Mediterranean. The whole was sold at Genoa; but no sooner was this outrage known than our Henry IV. issued a proclamation, in which he prohibited all commercial intercourse with Genoa until the merchants, to whom he had granted letters of marque, should capture a sufficient number of Genoese vessels to reimburse them the £24,000 they had lost, and £10,000 more for damages.

The commerce of England had long before this period been of sufficient importance to tempt the Jews to settle here in large numbers; and they were treated with a degree of cruelty which marked the illiberal spirit of the age. The Hanse merchants, who had an establishment in London at a very early period, were scarcely less popular, and encountered various persecutions, until they were finally extinguished as a company in the reign of queen Elizabeth.

The spirit of commercial enterprise had, previous to this period, been awakened among the Londoners, and several trading companies formed. One of these, consisting of 240 shareholders, who subscribed a sum of £6000, employed the celebrated navigator, Sebastian Cabot, to superintend the fitting out of three vessels for the purpose of making new discoveries. These ships were the means of opening a maritime in-

tercourse with Russia, and in the succeeding reign the English obtained an exclusive grant of the whole trade of that country. This intercourse led the way to the association of the Muscovy merchants; and several others were afterwards formed, particularly the Eastland Company, the Spanish Company, and the Levant Company; the latter undeceived the grand seignior, who had hitherto considered England a province of France.

That the merchants of London must have been wealthy at this period may be inferred from their fitting out thirty-nine ships, all amply furnished, to repel the threatened invasion of the invincible armada; and at the same time they had 135 ships of 500 tons and upwards engaged in trade. In the following reign, in 1613, we find that the city paid three-fourths of the whole customs of the country. The discoveries of a Drake, a Raleigh, a Hawkins, a Cavendish, and a Frobisher, in the reign of Elizabeth, opened new sources of commerce, which the pacific though inglorious reign of James in some degree improved; and a more active intercourse was also opened with Spain, Portugal, and France. Howe, in his edition of Stowe, enumerates the various countries with which London traded at this period, and the articles imported, adding, that it was 'one of the best governed, most richest, and flourishing cities in Europe, plentifully abounding in free trade and commerce with all nations.'

The reign of our first James was also favorable to commerce; Virginia, the Bermudas, Barbadoes, and Newfoundland, which had become colonies of Britain, opened new markets to the London merchants, and to the honor of the king it must be said, that he gave them every encouragement. He abolished monopolies, which in the preceding reign had been so injurious, and issued a commission for establishing a board of trade, with a view to the extension of commerce and the forming of a better code of navigation laws.

With the increase of foreign trade the naval strength of the country improved. While our commerce was limited to the neighbouring shores of Europe, small vessels were found sufficient; but the discovery of the East and West Indies soon suggested the necessity of having larger ships for long voyages, that would require provisions in proportion to the period it would require to perform them. The Portuguese, who were the first to form European settlements in India, introduced into the trade carracks of 1600 and 1700 tons; and our own East India Company, following the example, built two vessels, the *James* of 1000 tons, and the *Trade's Increase* of 1100 tons, which were larger than any ships at that time employed in the royal navy.

During the early part of the reign of Charles I. peace continued to promote the growth of commerce; and when the necessities of the misguided monarch urged him to make illegal requisitions on his subjects, the London merchants were called upon to fit out seven ships of war, and in addition to this the city, now becoming affluent, afterwards agreed, in 1643, to make a weekly payment of £10,000 for the use of parliament. The establishment of posts, the com-

mencement of price currents, or 'weekly bills of the prices of all commodities in the principal cities of Christendom,' which had long been customary abroad, and the formation of banking houses, are all evidence of the growing commerce of the reign of Charles I. It is true that this monarch afterwards, in revenge for the resistance which the city offered to his arbitrary conduct, endeavoured to destroy what he had assisted to raise, and issued a proclamation, declaring all persons traitors who had any dealings with the citizens; but the decree proved, as might be expected, a dead letter.

The reduction of the rate of interest from ten to eight per cent., in the year 1625, had proved highly beneficial to trade; and Sir Josiah Child relates, that ten years afterwards 'there were more merchants to be found upon 'change, worth each £1000 and upwards, than were formerly, that is, before 1600, to be found worth £100 each.' This rate of interest continued till the year 1651, when Cromwell, who, having firmly established his power, found leisure to apply his mind to civil affairs, and enforce those plans from which the commerce of England drew such great advantages, lowered the interest to six per cent. One of the first measures of the reign of Charles II., on his restoration, was to confirm this act of Cromwell, and with every reduction of interest commerce improved so much that the writer already quoted says, 'Now, since interest has been for twenty years at six per cent., notwithstanding our long civil wars, and the great complaints of the dullness of trade, there are more men to be found on the exchange now worth £10,000 than were then of £1000;' and Sir Josiah adds, 'our customs are much improved, I believe above the proportion of six to one, which is not so much by an advance of the rate of goods as by the increase of the bulk of trade.'

The navigation act, which had been proposed by James I., but was not passed into a law until the protectorate, was also of signal advantage to commerce. Trade rapidly advanced, nor did the great plague, and the equally destructive fire in the following year, do more than give it a temporary check, from which it recovered in a few years, increasing more than ever, until the wars of William III. with France. That our trade was then extensive is evident from the losses it was capable of sustaining, the French having, in the course of two years, captured 3000 sail of trading vessels belonging to this country. So much was commerce depressed during this eight years' war, that the tonnage of the shipping cleared outwards from the port of London was 96,766 tons less in 1696 than it was in 1688; and the value of the merchandise exported had fallen in the same period from £4,086,087 to £2,729,520. The restoration of peace, by the treaty of Ryswick, gave back to London its former trade, which generally formed three-fourths of that of the whole kingdom. In the year 1711 it appears to have been more, the amount of the customs in London being £1,268,995, while those of all the out-ports were only £343,381.

The South Sea bubble, the Scottish rebellion of 1715, and the Spanish war three years after

wards, were a' so many checks on the progress of commerce during the reign of George I., and the same may be said of the wars of his successor, and the unhappy struggle in the reign of his late majesty, which terminated in the independence of our flourishing colonies in North America. Commerce, however, can scarcely be said to have suffered by the change; for in the year 1784 the value of the exports to America amounted to £3,397,500. Being nearly £332,000 more than they were in any year previous to the war.

From this period, to the commencement of the revolutionary war with France, the trade of the metropolis increased most rapidly; and the exports, which in 1784 were little more than £3,000,000, were in 1792, £16,762,516 13s. 4d. In commerce there is an elasticity which overcomes all depression; and, although the exports were £2,000,000 less during the first year of the war with France, yet no sooner was the continent embroiled in the contest, than the trade of London was augmented so much, that in the year 1796 the exports were nearly £18,500,000, and the imports nearly £15,000,000. Large as this sum may appear, it has since been more than quadrupled.

During the war our vessels had nearly the whole carrying trade of Europe, and Great Britain became the entrepôt of all the products from beyond sea, destined for the consumption of Europe. Hence our imports in 1811 amounted

to £80,232,767, and our exports to £77,392,056, but on the return of peace, when this country ceased to be the route for the conveyance of foreign productions to continental Europe, the amount of exports and imports became considerably less. Ceasing then to be a channel for distributing the productions of other countries, and of scanty resources for export, Britain depends more than ever for commerce on the skill and ingenuity of her inhabitants in the useful and elegant arts, and in all that can give dignity to trade, and comfort to the people. 'It is on her manufactures,' as an able writer observes, 'that the great commercial importance of the country rests; on that technical talent, possessed by its inhabitants, of working up rude produce; of varying the wrought commodity in every imaginable form; of giving beauty, brilliancy, and durability of color, to every diversity of texture, and combination of material; this labor is the source of all that is enjoyed of elegance and convenience in life.'

It is true that our exports are less than during the war, yet our commerce has assumed a more healthy and a more permanent character. Our foreign trade is increasing in the most satisfactory manner; as also the export of our domestic manufactures. The following official document exhibits the state of our commerce at a recent period:—

Abstract of Accounts of the TRADE and NAVIGATION of the UNITED KINGDOM, during each of the three years ending the 5th of January, 1821, 1822, 1823.

Year.	Value of Imports into the United Kingdom, calculated at the Official rates of Valuation.			Value of Exports from the United Kingdom, calculated at the Official Rates of Valuation.						Value of the Produce and Manufactures of the United Kingdom exported therefrom, according to the real and declared value thereof.		
	£	s.	d.	Produce and Manufactures of the United Kingdom.			Foreign and Colonial Merchandise.			TOTAL EXPORTS.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1821	32,438,050	17	3	38,395,555	7	2	10,555,912	10	3	48,951,467	17	5
1822	30,792,743	4	10	40,831,744	17	5	10,629,689	5	51	461,434	3	1
1823	30,500,094	17	4	44,236,533	2	4	9,227,589	7	11	53,461,122	9	3

The actual exports and imports, to and from the port of London alone were many years ago estimated at £70,000,000 sterling annually; and the number of vessels which every year entered the port was not less than 15,000, allowing for the several voyages made by the same vessels. In the foreign trade alone the number employed

was, during the last year, 3587, amounting, in tonnage, to 635,799 tons. The following statement exhibits the relative proportion of the commerce of the port of London with foreign countries, and our own colonies, independent of the coasting trade, which is necessarily immense:—

The NUMBER and TONNAGE of all ships that have arrived during the year 1823, at the port of LONDON, distinguishing British from foreign ships.

Countries.	No. of ships		Tonnage
	Brit.	For.	
France	114	59	18,428
Russia	320	—	66,434
Prussia, Denmark, Norway, and Sweden	144	310	110,744
Holland, Germany, &c.	208	173	51,632
Italy, Sicily, and other places in the Mediterranean	204	1	28,675
Spain, including the Canary Islands	220	15	27,432
Portugal, including the Azores	275	11	27,704
Turkey	50	—	8,187
East Indies	85	—	46,472
China	19	—	25,000
West Indies	419	—	120,682
United States of America	19	40	16,900
South America	55	2	9,944
Canada	225	—	71,505
Cape of Good Hope, Sierra Leone, New S. Wales, &c.	78	—	15,148
Ireland	460	—	42,280
Guernsey, Jersey, &c.	27	—	2,465
Total	2922	611	689,632

London has always been, and must be, from its situation, the centre of British commerce; and although the liberal spirit of the age, in throwing more open the portals of the trade, may bring other ports into competition, yet the London citizen may always exclaim with pride, in the words of Cowper,

Where has commerce such a mart,
So rich, so thronged, so drained, and so supplied,
As London?

The Custom House.—The whole produce of the customs, on the exports and imports of England, were for many years farmed at £20,000. In the year ending the 5th of January, 1823, they amounted to £10,662,847! Such has been the growth of British commerce during a period of less than two centuries and a half. The levying of duties on ships and merchandise is generally attributed to Ethelred, and is said to have been first resorted to by that king in 979, when all vessels trading to London paid certain duties at Billingsgate, or Belin's gate, as it was then called.

The principles upon which the revenue of the customs, which were originally on exports only, were vested in the king were, first, because the king was bound of common right to maintain and keep up the ports and havens, and to protect the merchants from pirates; and, secondly, because he gave the subject leave to depart the kingdom, and to carry his goods along with him.

In 1274 the custom duties were sanctioned, as a source of revenue, by the parliament of Edward I., but the fees must have been very small for more than three centuries afterwards, for in

the year 1590 queen Elizabeth farmed them to one Thomas Smith for £20,000 a year. The queen was induced to do this in consequence of the representations of a person of the name of Caermarthen to her majesty, that she had lost £96,720 3s. 7d. in the customs, during the preceding eight years. Smith, who had been a collector of the customs, well knew their value, for he gained upwards of £10,000 by the contract.

In the year 1613 the customs amounted to £148,075 7s. 8d., of which London alone paid £100,572 18s. 4d. In 1666 they were farmed at £390,000; and in 1692 they amounted to £897,551. During the first half of the last century the customs remained nearly stationary, although commerce had greatly increased. The late reign was one, however, in which great skill and ingenuity were displayed in inventing means to increase the revenue: and although the 'official value of the goods' is still computed, with reference, not to the prices they bear in the current year, but to a standard fixed so long ago as 1696, yet in 1798 a duty of two per cent. was levied on our exports, the value of which was taken, not by the official standard, but by the declaration of the exporting merchants.

The first house for the 'receipt of custom' in London was built in 1385, by John Churchman, one of the sheriffs. This building appears to have been succeeded by another, which was destroyed in the great fire of 1666; a new custom-house on a large scale was erected in 1668, at an expense of £10,000, which was also burnt down by fire in Thames Street, in 1715. Three years afterwards, another custom-house, more spacious in its dimensions, and more regular in its structure, was raised, in which the business was conducted, until a fire which broke out on the morning of the 12th of February, 1814, laid the whole building in ashes, destroying several documents relating to the customs, as well as property to an immense amount. Two poor orphan girls, servants to the house-keeper, perished in the flames, and one man was killed by an explosion of some barrels of gunpowder in the vaults, which occasioned a shock similar to that of an earthquake. Previous to the destruction of the custom-house, which had become very inadequate to the increased business required to be transacted in it, the lords of the treasury had determined on erecting an edifice on a larger scale, and had actually adopted a plan, submitted by Mr. David Laing, the architect, under whose direction the present custom-house was erected.

The new custom-house, which is situated on the banks of the Thames, east of London Bridge, extends in length 489 feet, and in breadth 107 feet; the grand front facing the river, from which it is separated by a terrace, is of Portland stone. The centre is quite plain to the height of the ground floor of the building; but above the windows there is an entablature, divided into two compartments, ornamented with figures in alto relievo. In one compartment the commerce and industry of the country, and the arts and sciences connected with them, are allegorically represented; and in the other the costume and character of the various nations with which we

traffic are delineated. These groups are boldly executed; and, the height of the figures being nearly five feet, they can easily be distinguished from the terrace. Between the entablatures is an inscription recording the date of the erection, surmounted by a large sun-dial, which is sustained by two recumbent figures of Industry and Plenty. Each wing has six columns of the Ionic order; these give a grandeur to the edifice, which, on so extended a scale, might appear as carrying the simplicity of architecture too far. There is one great disadvantage in viewing the custom-house from the terrace, because it is much too narrow to include the whole building in one coup d'œil; and it can only be seen to advantage from the river.

The interior of the building is admirably constructed. There are necessarily several entrances to this noble pile; the two principal ones are in Thames Street. They lead through halls rather commodious than large to the grand staircase, which, by a double flight of steps, leads to lobbies at each end of the long room. This room, which is in the centre, is 190 feet in length, and sixty-six in width; it is divided into three quadrangular compartments by eight piers, surmounted by three domes, through which the rooms are ventilated. In addition to the long room there are upwards of 100 offices, appropriated to distinct branches of the business of the customs, as well as several private rooms. All the passages, lobbies, and the floor of the long room, except where the clerks sit, are of stone groined in brick. They are lighted by vertical lantern lights; and the communication between the most important parts of the house is by iron doors, which slide into a groove in the wall, and are closed at night, when they afford a good barrier against accidental fire. The whole building is well ventilated, and in winter is warmed by means of air-stoves. Several fire-proof rooms have been constructed, into which the books and most valuable papers are every night placed.

The first stone of the new custom-house was laid by the earl of Liverpool, the first lord of the treasury, and the Right Hon. Nicholas Vansittart, chancellor of the exchequer, on the 25th of October, 1813, and completed in 1817. The splendid edifice we have thus described has needed considerable alterations, in consequence of dilapidations in the foundations. The basso-relievo figures have been taken down and the 'long room' has been divided into three distinct apartments.

The business of the customs is under the direction of thirteen commissioners (two of whom fill the offices of chairman and deputy chairman), a secretary, clerks, and a great number of officers.

Connected with the commerce of London, indeed of the whole country, is the noble institution of the *Trinity House*. This society was first incorporated by a royal charter of Henry VIII. the 20th of May, 1514, granting to the shipmen and mariners of the realm authority to erect and establish a guild or fraternity, as well of men as of women, in the parish church of Deptford Strond, in the county of Kent, under the name and title of 'the master, wardens, and assistants of the guild

or fraternity of the most glorious and undivided Trinity.' They were empowered to make laws and statutes among themselves, for the relief, increase, and augmentation of the shipping of England; to levy fines or subsidies on offenders; to acquire lands and tenements to a certain amount; to maintain a chaplain, and to do and perform other acts of piety, and to enjoy all the franchises and privileges shipmen and mariners of the realm have used and enjoyed.

This charter was successively confirmed by Edward VI., queen Mary, and queen Elizabeth. The act of Elizabeth, after confirming to the society the general supervision of the buoys, beacons, and ballastage, enacts, that the corporation of the Trinity House may at their own cost make, erect, and set up any beacons and signs for the sea, on such places of the sea shore, or uplands near the coast, or forelands of the sea, only for sea-marks, as to them shall seem meet. The same act declares it penal to disturb those marks; and further authorises the master of the Trinity house to licence mariners to row on the Thames. By another act, in the 36th of the same reign, the queen granted to the corporation the lastage and ballastage of all vessels upon the river, which was then held by the lord high admiral, lord Howard, who surrendered it for the purpose. Some defects in the preceding patents and acts induced James I. to grant a new charter to the corporation of the Trinity House, giving them more ample powers for their government.

Few chartered companies in the metropolis are of more importance to the commerce and naval power of the country than the corporation of the master and wardens of the Trinity House, to whom is entrusted, in addition to the authority over the beacons and sea-marks, the examination of the masters of the navy, the appointment of pilots for the river Thames, with power to fine, in the penalty of £20, every person who shall act as pilot without their approbation,—the settling the rates of pilotage,—the preventing of aliens from serving on board British ships without their license,—the punishing of seamen in the merchant-service for mutiny or desertion,—the hearing and determining of all complaints of officers and seamen in the merchant-service, subject to an appeal to the high court of admiralty,—the granting of licenses to poor seamen, who are not freemen of the city, to row on the river Thames; and the examination of the mathematical pupils in Christ's Hospital. Such are the duties of this society, which is also charged with the clearing and deepening of the river Thames, in which service sixty barges are employed; and the supplying all ships that require it with ballast.

The revenues of the corporation are dispensed in charity. Independent of their alms-houses, upwards of 3000 decayed seamen, their widows and orphans, are annually relieved by this society, and the alms-houses of the corporation are twenty-eight in number. There are also two hospitals at Deptford belonging to the society.

Its business is transacted in an elegant structure on Great Tower Hill, built of Portland stone. It consists of a rustic basement, but the general order of architecture is Ionic. The

interior displays much good taste and characteristic neatness, particularly the court-room, which is neat and spacious. It was built under the direction of Mr. Samuel Wyatt; the first stone was laid September 12th, 1793, and it was opened for business two years afterwards. The master of the Trinity House is usually one of his majesty's ministers, and not unfrequently the premier.

Breweries.—In no article of general consumption does London maintain so great a monopoly and supremacy as in the brewing of porter, which is not only forwarded to the most remote parts of the kingdom, but exported to our colonies,—to the United States of America, and many of the continental states. So early as the reign of Elizabeth, the consumption of beer must have been very considerable; for in 1580 Sir Thomas Gorges, in applying for the office of gauger, stated to lord treasurer Burleigh that 'there was a deceit to the buyer of beer and ale, both in the assise of the vessels, and in the not filling them up; and that the buyers taken altogether were deceived hereby £30,000 a year.' There is also evidence of the quantity of beer brewed in London, in a calculation made in the year 1585 by order of lord Burleigh. It appears from this account, that there were at that time twenty-six brewers in the metropolis, of whom one-half were stated to be foreigners. They generally brewed six times a week, and the whole quantity brewed in London in one year, in small and strong beer, was 648,960 barrels.

Before we quit the 'olden time,' we may observe that the charge of adulteration, now so frequently made, was also urged against the brewers of the sixteenth century, who are said to have put 'darnel, resin, lime, and chalk, into the ale or beer, which making the drinkers thirsty, they might drink the more;' and that, when hops were dear, 'they put into their drink broom, bay-berries, ivy-berries, and such like things.' It is due, however, to the brewers to say, that these charges were never verified by the surveyors.

Although the excise duties, and the general introduction of tea and coffee, as a substitute for malt liquor at breakfast, must have operated for some time as a drawback on the consumption, yet it seems lately to have received a new impulse. In 1761 the quantity of porter made in London, by fifty-two brewers, was only 975,217 barrels, of thirty-six gallons each; now a single firm, that of Barclay and Co., brews upwards of 330,000 barrels in a year; and the quantity made by the twelve principal breweries has amounted, in one year, to the astonishing number of 1,500,000 barrels. What proportion of this quantity is consumed in London it would be difficult to ascertain.

Some of the principal breweries are among the curiosities of London, which every stranger should see. That known by the name of Whitbread's brewery, in Chiswell Street, the plant of which was a few years ago sold for nearly £1,000,000, was deemed worthy of a royal visit at a time that its business was not so extensive, nor its arrangements so complete, as at present. On the 28th of May, 1787, his late majesty, George III., accompanied by his illustrious con-

sort and the three princesses, and attended by several lords and ladies in waiting, visited this brewery. That of Messrs. Barclay is on an equally magnificent scale. See BREWING.

The ale and small beer breweries, and the distilleries in London, are on a great scale, though inferior to the porter breweries.

The *manufactures* of London are scarcely in proportion to its commerce. In the *silk trade* alone, however, 50,000 persons, or one-sixtieth of the whole population, are said to be employed; and in most of the light manufactures the number is proportionably great. It is no disparagement to the rest of the country, that London excels in its manufactures, since where the best price is paid the best workmen will be attracted; and it is due to the country to say, that to it London is constantly indebted for a succession of artists and mechanics, by whose ingenuity she is not only rendered celebrated but enriched. See SILK.

Many years ago, Sheffield, justly celebrated for its *cutlery*, challenged London to a trial of skill, by sending a knife of a very curious construction to the cutlers' company, with an insertion on one of the blades, defying competition. The London cutlers, ambitious for the honor of their trade, made a pen-knife, containing one well-tempered blade, in which was introduced a piece of straw. On the blade were some lines, stating the fact; and the Sheffield cutlers, who might well feel incredulous, broke the blade, and found the straw entire and unsinged,—a piece of ingenious art for which they acknowledged themselves unable to account; and yet Sheffield was celebrated for its cutlery so far back as the time of Chaucer, whose monk 'a Sheffield whittle bore he in his hose.'

In the more scientific manufactures, such as machinery, optical and mathematical instruments, London has always been celebrated. It was in the metropolis that Mr. Penn made his celebrated burning-glass, of such power, that iron, steel, flint stone, and even the diamond itself, yielded to its almost magic power; and here Dollond carried into effect, if he did not originate, that most important scientific discovery the achromatic glasses; and a Mudge, an Arnold, and a Brockbank, made chronometers, which seem to have approached perfection, as far as it can possibly be attained.

It is highly honorable to the operative mechanics and artists of the metropolis, that amidst all the fluctuation of trade, 'such a thing as a journeyman, tradesman, or any of his family, begging is almost unknown, and may with certainty be pronounced as one of the rarest of contingent events.'

Retail Traders.—A foreigner, in looking over a London Directory, and finding a list of between 30,000 or 40,000 trading firms, will be apt to consider the assertion of Buonaparte, that we are 'a nation of shop-keepers,' true to the letter; and if he is informed that this list, numerous as it seems, does not contain more than one-third of the shopkeepers in the metropolis, he will suspect that there are almost as many sellers as buyers. Still more would a stranger be astonished at learning how lucrative a business shop-

keeping is in London—where a pastry-cook has been known to die worth £100,000, and a dealer in shell fish, who spent the best years of his life in selling oysters in public houses, has left to his heirs a sum of £40,000. Yet such is the case; nor are these solitary instances of success in life. The list of individuals, who have risen from poverty and obscurity to high rank and splendid fortunes, would ‘stretch to the crack o’doom,’ and it is unnecessary to quote instances to show that in London the road to preferment, honor, and fortune, is open to the humblest aspirant.

That such fortunes are amassed in London is the more astonishing, when we consider the great expense with which large establishments are maintained; that the rent and taxes of many a retail trader amount to more than £1000 a year, and that the smallest house, if in a great thoroughfare, will let at the most extravagant rate. A shop, not more than three yards square, with a room above it of the same dimensions, has been known to be let as a snuff shop at a rental of £80 a year, and several other houses equally dear.

Of all the retail traders, the *Haberdashers*, though dealing in such small wares, seem to carry on business to the greatest extent. One single house in the city is known to take, on an average, £1,500,000 sterling a year, or more than 4000 guineas a day—one-half of this vast sum is received in cash for goods sold at the counter, and the other wholesale at a short credit. There are at least two other houses in the same business whose returns are £1000 a day. The proprietor of one of these establishments, which is necessarily large on account of the business being almost wholly retail, always gives the persons in his employment an extra allowance for supper when the receipts of the day amount to £1000; thus expressing his own gratitude, and rewarding and encouraging the exertions of those around him. Nor are haberdashers the only tradesmen who carry on extensive business, or amass large fortunes; there is Exeter Change, long celebrated for its cutlery and hardwares, &c., where the prince of retail dealers, the eccentric Thomas Clark, amassed £1,000,000 sterling, and while he paid £7000 a year to government as income tax, spent only a shilling on his own dinner.

About ten or a dozen years ago a number of establishments somewhat similar to Exeter Change, which is not confined to any one particular branch of trade, sprung up in London, to which the oriental term of bazaar was given, which literally means a market. Of these, only two remain—the western bazaar, in Bond Street, and that of Mr. Trotter, in Soho Square. The latter is a very extensive and well regulated establishment. Several large rooms are fitted up with counters, drawers, shelves, &c., for the sale of almost every species of light articles, where between 500 and 600 females attend and trade on their own account in the various articles of domestic manufacture. The price paid is in proportion to the space occupied. The utmost care is taken that none but persons of the strictest moral character are admitted, and that they shall not be subject to any insult from the idle and dissolute loungers of the other sex.

Two other marts for retail trade have been formed; the Burlington Arcade, in Piccadilly, and the Royal Arcade in Pall Mall; both are elegant architectural improvements, and they have been very successful as commercial speculations.

The streets most celebrated for retail trade are Fleet Street, Ludgate Hill, St. Paul’s churchyard, Cheapside, the Poultry, and Cornhill, in the city; in the Strand, King Street, and Henrietta Street, Covent Garden; Cockspur Street, Pall Mall, St. James’s Street, Piccadilly, Oxford Street, and Bond Street, at the west end of the town. The recent improvement, in opening a communication from Carlton House to the Regent’s Park, has created a new and spacious street for retail business, called Regent Street and the Regent’s quadrant, which has on each side a grand colonade.

Markets and supply of Provisions—Smithfield is the grand mart for the sale of live stock, which is held on Mondays and Fridays. Newgate and Leadenhall markets take the lead for butcher’s meat, poultry, &c., although there are several other markets in various parts of the metropolis, where the business is equally respectable though not so extensive. Covent Garden market is celebrated for the early and abundant supply of fruits, vegetables, herbs, and flowers. The only fish-market in London is that of Billingsgate, which is supposed to have derived its name from Belinus, the son of Dunwallo, who built a gate here, which he ordered to be surmounted with an urn containing his ashes, after his death. It has long been a matter of regret that the sale of fish should be confined to one market, as, owing to the monopoly thus established, the supply of that article is neither so abundant nor so reasonable as it would otherwise be. In the mackerel season, if that fish is very plentiful, the dealers will rather throw their cargo over-board, or sell it for manure, than, by bringing it to town, reduce the price. Salmon, which is often very plentiful, and sold as cheap as at Berwick, or in Yorkshire, and Durham, whence it is supplied, is brought to London packed in ice. Turbot, though caught in great quantities on the Yorkshire coast, and sold there at about 4d. a pound, is always extravagantly dear in London—so dear, indeed, as to render it a luxury attainable only by the wealthy.

The fruits and vegetables consumed in the metropolis are principally produced in the environs; and it is calculated that there are upwards of 6000 acres of ground cultivated as gardens within twelve miles of the metropolis, giving employment to 30,000 persons in winter, and three times that number in summer. It is the opinion of the intelligent author of the *Pomarium Britannicum*, that gardening has conferred a great blessing on the metropolis, in the prevention of pestilential diseases, by making cleanliness a matter of profit, and giving a ready sale and liberal price for the soil, which might otherwise be suffered to accumulate.

Numerous calculations have been made of the annual consumption of food in the metropolis, but this is not easily ascertained, as, although we may know the number of cattle and sheep, yet

we have no means of learning their weight, which, by the modern improvement in feeding, has been considerably increased.

Of the quantity of cattle sold in Smithfield market there are however accurate returns; and we find that, in the year 1822, the numbers were 149,885 beasts, 24,609 calves, 1,507,096 sheep, and 20,020 pigs. But this does not by any means form the total consumed in London, as large quantities of meat in carcases, particularly pork, are almost daily brought from the counties around the metropolis. It would appear that the inhabitants of London have become more partial to mutton than formerly, for the quantity of cattle consumed has not increased in proportion to that of sheep; the quantity of cattle sold at Smithfield in the year 1701, being 88,304, or more than half the number sold in 1822, while the number of sheep was 480,000, or less than a third sold in the latter year. The total value of the cattle sold in Smithfield is calculated at £8,500,000. It is supposed that £1,000,000 a year is expended in fruit and vegetables; the consumption of wheat amounts to 1,000,000 of quarters annually; of this four-fifths are supposed to be made into bread, being a consumption of 64,000,000 of quartern loaves every year in the metropolis alone. Until within the last few years the price of bread was regulated by assize, and it may afford some idea of the vast amount of money paid for this 'staff of life,' when it is stated, that an advance of one farthing on the quartern loaf formed an aggregate increase in expense for this article alone, in London, of upwards of £13,000 a week.

The annual consumption of butter in London amounts to 11,000, and that of cheese to 13,000 tons. The money paid annually for milk is supposed to amount to £1,250,000, although the number of cows kept in the neighbourhood of the metropolis does not exceed 10,000. One grazier at Islington keeps between 600 and 700 cows, and another between 400 and 500.

The quantity of poultry annually consumed in London is supposed to cost between £70,000 and £80,000; that of game depends on the fruitfulness of the season and the kindness of country friends. There is nothing, however, more surprising than the sale of rabbits. One salesman in Leadenhall market, during a considerable portion of the year, is said to sell 14,000 rabbits weekly. The way in which he disposes of them is, by employing between 150 and 200 men and women, who hawk them through the streets.

It appears, from the Northumberland House book, that, in the early part of the sixteenth century, the stores for the household for a whole year were usually purchased at fairs. Far different, however, are the fairs held in the metropolis and its neighbourhood, where

—raree shows are seen, and Punch's feats, And pockets picked in crowds, and various cheats.

Three of these fairs were formerly held in the metropolis, Bartholomew fair, Southwark fair, and May fair; the two latter have been abolished, and the former shorn of much of its ancient

glory. Southwark fair commenced on the 8th of September, on which day the lord mayor and sheriffs were wont to ride in their scarlet gowns, after dinner, at two o'clock, to St. Magnus's church, where they were met by the aldermen. After evening prayer, they all rode through the fair as far as Newington bridge, and then retiring to the bridge house they 'refreshed themselves with a banquet.'

Plays were enacted at St. Bartholemew fair, and Rich is said to have met with Walker, the original Macheath, at this fair, playing in a booth: upon being struck with his talents, he engaged him for the Lincoln's Inn theatre. This fair used to continue for upwards of a week; but in September, 1743 it was limited to three days, on which the proprietors of booths, who usually made a collection for the prisoners in the Marshalsea, declared they could no longer afford it. This so incensed the prisoners, that they pulled up the pavement, and threw stones over the wall on the bowling-green adjoining the prison, by which a child was killed and several persons wounded. The high constables and magistrates now determined on putting down the fair; but proprietors of booths and stalls removed to the Mint, a place that had long claimed peculiar privileges on account of the palace which formerly stood there, built by Charles Brandon, duke of Suffolk. Here the fair was held for some time, until, in the year 1763, it was entirely suppressed.

May Fair, which commenced on the 1st of May and continued for sixteen days, was held near Piccadilly and Park Lane, on the site now occupied by May Fair Chapel and the adjacent mansions, formerly called Brook Fields.

Bartholomew Fair, that annual scene of disorder, is still continued, though reduced in duration from a fortnight, to which it had extended, to three days, the time originally fixed; and it is declining so rapidly that, in a few years, it will probably be discontinued altogether without any positive suppression, as has been the case with the fairs in the environs of London. Indeed some doubts are entertained of the legality of suppressing the fair, as it is held under a charter granted by Henry II. to the priory of Bartholomew, and confirmed by succeeding monarchs.

Two other fairs were held in London, in Tottenham Fields, and at Stepney; but these have been suppressed, as have those of Bow, Edmonton, Brook Green, and West End, all in the immediate neighbourhood of London. There is another fair which, though at some distance from town, claims a notice on account of its popularity with almost all ranks in the metropolis. This is Fairlop fair, which is held on the first Friday of July, in Hainault forest. This fair was founded by Daniel Day, an eminent block-maker in Wapping, who, having an estate in Essex, used to assemble a few friends around him on the 1st of July, under a huge oak in the forest, to dine on beans and bacon. Public curiosity was at length attracted to the spot from this circumstance, and a fair established which, in fine weather, is frequented by thousands from the metropolis.

The Police.—In a large metropolis, such as

London, the subordinate branch of the civil government, the police, is of the utmost importance; and, where this is not well organised, the inhabitants go unprotected, and crimes pass unpunished. In France the police system is supposed to have attained its greatest perfection; but the domiciliary visits and the espionage that are there practised would not be permitted in this country, where it is the proud boast of every man, that 'his house is his castle,' and that 'he cannot be punished but by the laws.'

Of the municipal regulations of the city of London, from the time of Alfred to that of the conquest, historians are not very communicative; but we learn that, when Henry I. had abolished the obnoxious curfew, robbery and murders became frequent in the night. Hoveden, and Walter of Coventry, give us a lamentable picture of the metropolis at a period somewhat later. From these accurate historians we learn that, in 1175, a brother of the earl Ferrers was not only privily slain in London during the night, but that 'it was then a common practice in the city, that 100 or more in a company of young and old would make nightly invasions upon the houses of the wealthy, to the intent to rob them; and, if they found any man stirring in the city within the night, they would presently murder him, in so much that, when night was come, no man durst venture to walk in the streets.' From the same historians we learn that, among the burglars and assassins of this period, there was 'a certain citizen of great consequence, credit, and wealth, surnamed John the Olde, who, when he could not acquit himself by the water ordeal, offered the king 500 marks for his life.'

Intoxication also appears to have been an early vice in the metropolis; for Fitzstephen, a native of London, who was not disposed to slander his fellow citizens, after stating that 'there is no city that hath more approved customs, either in frequenting churches, honoring God's ordinances, observing holidays, giving alms, entertaining strangers, and fulfilling contracts,' adds, 'the only plagues are the intemperate drinking of foolish people, and the frequent fires.'

But, frequent as robbery and other outrages had become in the metropolis, it was not until the year 1253 that the protection of a nightly watch was thought of. To Henry III. we are indebted for this institution, and it was this monarch also who revived an old Saxon law, which is still partially in force, so far as relates to injuries committed by riotous assemblages, 'that if any man chanced to be robbed, or by any means damnified by any thief or robber, he to whom the charge of keeping that county, city, or borough, chiefly appertained, where the robbery was done, should competently restore the loss.'

The pageant or cavalcade of setting the 'marching watch,' in addition to the standing watches was an imposing spectacle. It was dressed 'all in bright harness,' and traversed the principal streets in the city, to the extent of '3200 taylor's yards.' The marching watch amounted to 2000 men; but in course of time it got so relaxed in discipline, and so expensive to the city, that it was abolished by Henry VIII.; and, though afterwards revived by Edward VI., it soon sunk into disuse.

Elizabeth took the advantage of some riots 'to appoint a provost martial, with sufficient authority to apprehend all such as should not be readily reformed and corrected by the ordinary officers of justice; and, then without delay, to be executed upon the gallows, by order of martial law.' Nothing could be more summary than the process of the provost martial, Sir Thomas Welford, who rode through the city with a number of armed men, arrested all vagrants and idle persons, and five of these who were accused of a riot on Tower Hill, were condemned and executed on the spot where they had offended. The martial law of Elizabeth was not long in force, and the police of the metropolis, without undergoing any very violent change, has ever since been improving, until it has attained its present state: which is so far from being considered perfect, that new regulations have very recently been made. The subject has of late years occupied much of the attention of parliament, and, in the session of 1822, a select committee was appointed to enquire into the state of the police of the metropolis.

In the metropolis there are eight police offices, independent of those of guildhall and the mansion-house in the city. At the mansion-house the lord mayor presides; the aldermen attend in rotation at guildhall. In order to the convenience of the magistrates, the city is divided into two districts. All cases which occur eastward of King Street are taken to the lord mayor, and all cases to the westward are referred to the sitting alderman at guildhall. The officers appointed to conduct the business of the police of the city, under the lord mayor and aldermen, are two marshals, at salaries of £500 and £450 a year; six marshal men receiving £130 a year, each; and 1099 patrols, watchmen, constables, &c., the expenses of which, in the year ending 1822, were £28,004 per annum; but, as the returns were not complete, it is probable that it considerably exceeds that sum.

The number of parish constables, patrols, watchmen, &c., in the several parishes in the city of Westminster, and the counties of Middlesex and Surrey, within a circuit of five miles, amounted to 2945 in 1802; and the expense, so far as it was made out in the return to parliament, was £66,700 5s., making the whole number of local police in the metropolis 4044, independent of the horse and foot patrol, and the officers under the direction of the magistrates at the several police offices.

At each of these offices, of which that at Bow Street takes the precedence, there are three magistrates, two clerks, and eight officers, with the exception of the Thames police office, where, instead of the eight officers, there are seventeen surveyors, six land constables, and forty-five river constables, with six river surveyors, and twenty watermen employed above bridge, and at Blackwall.

Under the superintendence of the chief magistrate, at Bow Street, there are the horse patrol, mounted and dismounted; the foot patrol, and a day patrol. The horse patrol was formed in the year 1803, in consequence of the frequency of highway robberies. It is stationed on the principal roads leading to the metropolis, and within

a distance of twenty miles. The foot patrol was established in the time of Sir John Fielding, on account of the great number of footpad robberies: they were originally employed in traversing the principal roads within a distance of four miles from the metropolis; but, in consequence of the great number of street robberies in 1821, it was deemed necessary to confine the exertions of the foot patrol within narrower limits, and to employ them in the streets of the metropolis, while a body of what is called 'the dismounted patrol' was employed in the suburbs. Since that time, an active day patrol has been established, at the suggestion of the parliamentary committee, which has already proved of great service in preventing and detecting the more open depredations committed in this great city.

While we now write (1830) a very efficient police force is organising for the metropolis and suburbs. They are under the superintendence of a military officer, who receives instructions from the Home Department in Whitehall. When we bear in mind the character of our former 'guardians of the night,' and contrast them with the new police establishment, the advantage of the change must at once be obvious. The watchmen were generally decrepid from age and infirmities, while the new police is to be entirely composed of men in the prime of life, and of unblemished character. The cost of the new police establishment will be greater than the old, by about thirty per cent—a circumstance more than compensated by their improved character.

Coaches and sedans.—We read of whirlicotes or open chariots at an early period of ancient history; but the covered coach, which is a luxury of modern invention, was not known in England before the reign of queen Elizabeth.

In 1625 captain Bailey, an old sea officer, first set up coaches to ply for hire, which were hence styled hackney coaches, and not as some have supposed from their having been chiefly employed in conveying the citizens to their villas at Hackney. He began with four, whose customary station was at the Maypole in the Strand, where the new church now stands. The drivers were dressed in elegant liveries, and left in this respect an example which their successors might do well not so entirely to disdain.

In 1635 the number of hackney coaches had so much increased as to be regarded in the light of a nuisance by the court. In that year there was an order passed by the king in the star chamber which proceeds in these terms:—'His majesty, perceiving that of late the great number of hackney coaches was grown a great disturbance to the king, queen, and nobility, through the streets of the said city, so as the common passage thereby was hindered and made dangerous, and the rates and prices of hay and provender and other provisions of the stable thereby made exceeding dear, hath thought fit, with the advice of his privy council, to publish his royal pleasure for reformation therein.' His majesty then commands that 'none should be used therein except they be to travel at the least three miles out of town, and that no person should go in them ex-

cept the owner constantly keep, within the cities or suburbs, four sufficient able horses or geldings fit for his majesty's service, whensoever his occasion shall require them.'

Two years after, however, Charles had so far changed his views that he granted a special commission to the marquis of Hamilton, master of the horse, to license fifty hackney coachmen in and about London and Westminster, with liberty to each to keep twelve, but not more, good horses for the purpose of their business. The number of hackney coaches required at this time would seem, from the number of horses allowed to each coachman, to have been about 300. At present, for the regulating of hackney coaches and chairs in London, there are several statutes, viz.: 9 Ann. c. 23, made perpetual by 3 Geo. I. c. 7, and enlarged as to the number of coaches by 11 Geo. III. c. 24: 42 Geo. III. c. 78, so as to make the whole number to be licensed 1100, and enlarged also as to chairs by 10 Ann. c. 19, and 12 Geo. I. c. 12, making the whole number of those 400. By 48 Geo. III., c. 87, the fares were increased.

By 54 Geo. III., c. 147, 200 hackney chariots were allowed to be licensed as part of the 1100; and, by 55 Geo. III. c. 159, 200 additional hackney chariots were allowed, and several regulations made as to the fares. The other statutes now in force are, 12 Ann. stat. 1, c. 14: 1 Geo. I. c. 57: 30 Geo. II. c. 22 (see CARTS): 4 Geo. III. c. 36: 7 Geo. III. c. 44: 10 Geo. III. c. 44: 11 Geo. III. c. 24, 28: 12 Geo. III. c. 49: 24 Geo. III. stat. 2, c. 27: 26 Geo. III. c. 72: 32 Geo. III. c. 47.

Population.—Until the general census of the population was taken, in 1801, political economists differed widely in their estimates of the number of inhabitants the metropolis contained, and of the progressive ratio of increase. In the year 1377 London is said to have contained about 35,000 inhabitants. Howell, in his *Londinopolis*, says that, when Charles I. wished to ascertain the number of papists and strangers resident in the city, he sent a precept, in 1636—7, to Sir Edward Bromfield, then lord mayor, who caused a census to be taken of the whole population within the city walls, which at that time is said, though erroneously no doubt, to have amounted to 700,000. Howell, having no suspicion of the inaccuracy of this calculation, and inferring that the population had increased one-third, during the twenty years that had elapsed before he published his work—and adding to this the population of the city of Westminster and the suburbs, estimates the whole to amount to 1,500,000 of men, women, and children.

Sir William Petty, whose knowledge of political economy must ever entitle him to respect, formed an equally fallacious opinion as to the increase of population in London. In 1682 he calculated the number of houses at 84,000; and that there were eight persons in each house, which would give a population of 672,000. Sir William expected that London would go on increasing until the year 1800, when he thought the population would amount to 5,359,000 persons!

An historian, who wrote in 1746, calculated

the number of houses at 124,000, and the population at 992,000; but Dr. Brakenbridge, eight years after, fixed it at only 751,812 persons, and there is strong reason to believe that this estimate was nearly correct.

But, to come to more certain data, we find that, according to the census of 1801, London at that time contained 121,229 houses, inhabited by 216,073 families, making 864,845 persons. In 1811 it had increased to 1,099,104; and, in 1831 to 1,474,069 persons. The last census is very minute in its details, and perhaps as accurate as it can well be made. It states that the city of London, within the walls, contains 8002 houses, inhabited by 11,719 families, or 55,778 persons, of whom 27,327 are males, and 28,451 females. Two families are stated to be employed in agriculture; 9609 in trade or manufactures, &c.: and 1960 families not comprised in either of these two classes. Thirty-two houses were building, and 705 uninhabited.

The city without the walls, including the inns of court and chancery, comprises 9232 houses, inhabited by 15,884 families, of whom fifty-five are employed in agriculture, 11,101 in trade, &c., and 4754 families in neither trade nor agriculture. The number of males is 33,413, and of females 34,492, making a total of 67,905.

Forty-nine houses are returned as building, and 426 as uninhabited.

The city and liberties of Westminster contain 20,616 inhabited houses, 864 uninhabited, and 412 building. The population consists of 46,004 families, or 201,842 persons, of whom 95,219 are males, and 106,623 females. Of the families, 119 are engaged in agriculture, 24,092 in trade, and 21,793 in neither the one nor the other.

The borough of Southwark contains a population of 90,000 persons, of whom 43,690 are males, and 46,310 are females. The number of houses inhabited is 12,477; the families 21,207, of whom 272 are employed in agriculture, 15,075 in trade, and 5860 are not comprised in either of these classes. In 1821 there were 208 houses building, and 502 uninhabited.

A considerable portion of the population of the metropolis does not, however, come under any of these divisions, but belongs to what may be called the suburbs in the hundred of Ossulstone, which is classed into four divisions: Finsbury, Mary-le-bone, Lambeth, and the Tower Hamlets. These parts of the town having every year rapidly increased, were admitted, by the provisions of the reform bill, to the rank of separate boroughs, each sending two members to parliament.

LONDON MISSIONARY SOCIETY.—The formation of this religious institution, whose object is the dissemination of Christianity throughout the world, may be dated about the year 1794. The extensive plan of benevolent exertion proposed might have impressed many minds, and occupied many hearts at the same moment; but it is the province of the historian to collect and present to the reader those facts and events which made known to the world the grand design of the projectors, and called the attention of the people at large to the moral necessities of their fellow-beings. In this view the public voice has given to the late Rev. David Bogue, an independent dissenting minister at Gosport, the proud and honorable title of the Founder of the London Missionary Society. Three years before the rise of this institution Mr. Bogue made a vigorous effort to gain attention to this benevolent object; for in a discourse which he preached at Salters' Hall, London, in 1792, before the correspondent board of the society in Scotland, incorporated by royal charter for Propagating Christian Knowledge in the Highlands and Islands, we have a most perfect specimen of a missionary sermon. About this time a conversation with one of his hearers, the widow of his predecessor the Rev. Mr. Williams, was followed up on her part by sending a small sum as her first contribution towards this object, which she pressed him immediately to undertake. The daughter of this lady, who wrote some of the first missionary hymns, used to exult in saying that if Mr. Bogue was the father, Mrs. Williams was the mother of the Missionary Society. But a visit made by Mr. Bogue to Bristol, in

August 1794, to preach at the tabernacle, erected there by the celebrated Whitefield, gave rise to the actual determination to unite the various bodies of Christians in the grand and benevolent scheme. There Mr. Hey, pastor of the independent congregation at Castle Green, Bristol, joined with Mr. Bogue and Mr. Steven, minister of the Scotch church at Covent Garden, London, who was Mr. Bogue's colleague in the tabernacle pulpit at this time, to attempt to rouse the public mind to the neglected duty. In pursuance of this object Mr. Bogue inserted in the Evangelical Magazine for September, 1794, an address to those evangelical Dissenters, who practise infant baptism; which produced a powerful effect, and the attention of Christians was kept alive by constant reference to the subject in the same magazine. The associated ministers of Warwickshire, through their organ, Dr. Edward Williams, then minister at Carr's Lane, Birmingham, and afterwards president of the independent college at Rotherham in Yorkshire, were among the first echoes to this awakening voice. Dr. W. had previously made an effort to gain the co-operation of his brethren in the grand cause.

But a meeting had been held in London, at the Dissenters' Library, Red Cross Street, where a conversation took place between the Rev. J. Eyre, of Homerton, and several Scotch ministers in London, Messrs. Waugh, Love, and Steven, on a publication by the Rev. Melville Horne, to rouse attention to missions. Mr. Eyre, on his return from the library, called on the Rev. Matthew Wilks, minister of the Tabernacle, Moorfields, and communicated to him the conversation. These two ministers resolved to meet again

and each to bring a friend with him. Their number having augmented to seven or nine persons, they agreed to meet once a fortnight at the Castle and Falcon in Aldersgate Street, for prayer and reading of the Scriptures on this subject. After several meetings they gave publicity to the affair; addressed Mr. Bogue on the subject, and invited leading men in the several counties of the kingdom to co-operate.

In the month of July 1795 the Evangelical Magazine announced that a meeting would be held in London, in September, to form a missionary society; and a circular letter was extensively dispersed among ministers both in town and country.

On Monday morning, September the 21st, several ministers met at the Castle and Falcon, Aldersgate Street, to make preparatory arrangements. They opened a subscription, amongst themselves, amounting to £740. In the evening a general meeting was held in the same place; at which Sir Egerton Leigh, Bart., presided; and, cordial co-operation being tendered from all quarters, the formation of the society was determined. On Tuesday morning, September 22d, a numerous assembly, including about 200 ministers of different denominations, met at Spa Fields chapel, where Mr. Haweis, rector of Aldwinkle, preached from Mark xvi. 15, 16. After the service a kind of constituent assembly was held in the area of the chapel. Mr. Kingsbury, of Southampton, was chosen moderator, and a committee, consisting of Messrs. Bogue, Eyre, Greathead, Haweis, Hay, Hill, Kingsbury, Lambert, Love, Reynolds, Saltern, Steven, and Waugh, were appointed to bring forward the plan of the new society. In the evening Mr. Burder of Coventry preached in the Scotch church, Crown Court, Covent Garden, from Jonah iii. 2. The next morning Mr. Greathead, of Newport Pagnel, preached at Haberdashers' Hall, on the question 'Who is my neighbour?' In the evening Mr. Hey of Bristol on Ephesians i. 10. On Thursday morning Mr. Rowland Hill preached at Surrey Chapel on Matthew xxi. 14; and the last public service was at Tottenham Court Chapel, on Thursday evening, when Mr. Bogue preached from Haggai i. 2. In the afternoon of Friday, September 25th, the general meeting took place, for the last time, at the Castle and Falcon. The Rev. Mr. Percy having been called to the chair, and the blessing of the Almighty solemnly invoked, Joseph Hardcastle, esq., a merchant of London, was nominated treasurer. The meeting then proceeded to the election of twenty-five directors, and the following gentlemen were unanimously chosen:—The Rev. Messrs. Bogue, Boden, Brooksbank, Burder, Eyre, Greathead, Haweis, Hey, Hill, Lambert, Leigh, Love, Mends, Parsons, Platt, Reynolds, Steven, Waugh, and Wilks; also, Messrs. Foyster, Neal, Stokes, West, John Wilson, and Thomas Wilson. The following gentlemen were afterwards added, with the entire approbation of the society. Rev. Messrs. Audley and Saltern, and Messrs. Alday, Campbell, Cowie, Steven, and Taylor. The Rev. Mr. Love and Mr. Shrubsole were elected secretaries. At the first meeting of the

members of the society it was resolved to recommend and countenance public meetings for prayer, to be held on the evening of the first Monday in every month. This recommendation has been received and practised to a great extent; and to maintain these monthly meetings has become the usage of Christians in almost every part of the British empire, in various parts of the continents of Europe, Asia, Africa, and America, and in many islands of the sea.

The admirable simplicity which characterized the constitution of this society was adapted to render it popular: as its object was to send the gospel to the heathen, and the ultimate end proposed the conversion of the world to God by the diffusion of the truths of Christianity, the code of laws for the regulation of its members and affairs was considered as made by the great head of the church, and contained in the New Testament: it therefore recognised no worldly alliances, it placed the members of the society under no president but him who is head of the church, and anxiously avoided every political and ecclesiastical party in the kingdom, while from the catholicity of its fundamental principles it opened the door and invited the co-operation of the wise and wealthy of every communion.

When such a scheme was proposed it was not only natural but right that persons should hesitate and enquire before they decided, when it is considered how far the different denominations had previously stood from each other, how frequently they spoke of the defects of each other's system, and how warmly they eulogized the excellencies of their own, how little intercourse had existed between them, and how perfectly novel was the experiment of uniting Episcopalians, Presbyterians, Independents, and others, in one active and harmonious society, without acknowledging the peculiarities or superiority of any of them: it is indeed no matter of surprise that such a scheme should to the minds of some have appeared absurd and impracticable; but the experience of the Society has confirmed the reasonable expectations of its projectors, and it has long enrolled upon its lists active and zealous Christians of nearly all communions. As it became generally known, auxiliary societies were formed in different parts of the kingdom, and thus by tributary streams the tide of life flows onward and forward to fertilize the desert and solitary place. After a series of years had elapsed, during which the society had become thoroughly aware of the difficulties which were presented to the success of its labors by the language, manners, and peculiarities of heathen nations, it was determined to establish a seminary or college for the purpose of qualifying young men for the special work of missionaries. At first the directors cheerfully received and sent out those pious men whose zeal constrained them to offer their services to the cause; but time and reflection produced an almost unanimous opinion that a seminary was absolutely requisite for the credit and success of their labors. Gosport was chosen as the appropriate spot whereon to commence this institution; and in selecting the Rev. Dr. Bogue, as the first tutor, the conduct

of the directors was marked by equal wisdom and kindness; his capacious mind, sound judgment, religious heart, and ardent zeal, rendered him eminently valuable in such a station. For nearly thirty years he presided over the seminary; and at his death it was removed to Hoxton, and is now under the superintendence of the Rev. Dr. Henderson, whose labors for the British and Foreign Bible Society, in Russia, form so conspicuous a part of the history of that institution.

The society thus formed, and prepared for useful service, selected the *South Sea Islands* as the first scene of its benevolent labors, amongst a race of people in the most deplorable state of ignorance, and whose beautiful country was filled with habitations of cruelty; subscriptions to a considerable amount were raised for this purpose, a committee of examination formed; and, a number of zealous persons having tendered their services, on the 16th of August, 1796, thirty missionaries, with six women, and three children, embarked from London on board the *Duff*, a vessel purchased by the society for £5000, commanded by captain Wilson. After various delays and disappointments they sailed from England on the 25th of September, and arrived at the harbour of Rio Janeiro: here they refitted, and procured a variety of seeds and plants which it was supposed would be useful for cultivation at Otaheite. The latter part of the voyage was attended with considerable danger. At length, however, on Saturday, the 4th of March, the island of Otaheite was discovered at a considerable distance, and by seven o'clock the next morning they got abreast of the district of Ataboroo. They were received by the inhabitants with astonishment and apparent delight. A solemn service of thanksgiving was performed, at which the natives behaved with great quietness and attention. The *Duff* then proceeded to anchorage in Matavai Bay; and a few days after their arrival captain Wilson obtained an interview with Otto, the king, and stated to him the object for which they had visited his island. A house was now given to the missionaries, and as much land as they thought proper; the next day they went ashore with their beds, chests, &c., and took possession. On the following Sunday the brethren directed the attention of the people to the object of their mission, and Mr. Jefferson addressed them through the medium of an interpreter; some of them enquired whether the messages of God were sent to the servants as well as the king and chiefs. They replied in the affirmative. Otto the king was present on the occasion, but the discourse did not appear to make any impression upon him. The next Sunday Kelso and Harris, who had chosen the islands of Tongatoboo and Christinia, were solemnly set apart to their work at the mission house, and the sacrament of the Lord's supper administered, the bread fruit of Otaheite being used as the symbol of the body of Christ.

The first effort of the brethren was made to prevent the destruction of new born infants, by proposing to take every child that had been born amongst a society called *Arrôtes*, where this habit prevailed, into their own care, and provide a

house for the mothers during confinement. They succeeded in some degree. Anxious to impart the blessings of civilisation, the missionaries began early to initiate the Otaheitans in the most useful arts: they therefore constructed a saw-pit, and in the month of April completed the erection of a forge. This caused great astonishment and some fear. Pomarre, the king's son, who was present, was so completely charmed, that he caught the blacksmith in his arms and joined noses with him, as a sign of his highest satisfaction. Captain Wilson having conveyed some of the missionaries to the islands of Tongatoboo and Christinia now returned to Otaheite, and, finding the brethren most hospitably treated, bade them farewell and arrived in England in the beginning of July, 1798.

On receiving the gratifying intelligence of the first successful voyage, the directors, at a special general meeting, resolved to employ a ship belonging to the society in another voyage to the Pacific Ocean, to supply the brethren with assistance in their arduous undertaking; they in consequence sent ten married couples, seven children, and 419 single brethren. On this occasion captain Robson commanded; they embarked in October, and were detained at Portsmouth several weeks by contrary winds; at length on the 20th of December they weighed anchor, and sailed under convoy of the *Amphion* frigate. On the 2d of January, 1799, they lost their convoy, and the following day were alarmed by the appearance of a strange sail; this proved to be an American brig. On the 19th of February when they came in sight of Cape Frio, and expected to anchor in a short time at Rio Janeiro, a strange vessel which had been rapidly approaching fired a gun to bring them to. This shot was soon succeeded by a second; and the result was a communication to the captain of the *Duff*, that his vessel was a prize, and that all her men must instantly quit her, and place themselves at the disposal of the enemy; the vessel in which they were now confined was a French privateer, and they soon learnt that the *Duff* could not be ransomed, as she was to be taken to the Spanish port of Monte Video in South America: a second and third prize captured, they sailed immediately and entered the Rio de Plata on the morning of the 12th of March. Here they met their several families who had been brought thither in the *Duff*. During these detentions they were treated with every possible civility; until a passage was procured for them to Rio Janeiro: whither, after the lapse of a month, they had nearly arrived, when they were doomed to suffer a second capture, owing to the Portuguese vessel in which they sailed, having been purchased without having been regularly condemned. There they suffered considerable hardships, being divided into two parties, those on board the *Amazon* were treated with great humanity, while the brethren on board the *Medusa* were at the mercy of unfeeling and brutal tyrants. After some severe gales, and giving place to several strange vessels, they arrived at Lisbon on the 22nd of September obtained their liberty, and with the exception of one female, who died and was buried there, they all returned to their native land safely.

We now revert to the affairs of Otaheite, where a circumstance had occurred which induced most of the brethren to abandon the scene of their labors. Early in the month of March, 1798, the ship *Nautilus* anchored in the Matavai Bay to undergo repairs and take in water, when two of the seamen and five natives of Owyhee who happened to be on board escaped, and concealed themselves on the shore. The brethren were prevailed upon to send a deputation to the king that the fugitives might be delivered up. On this occasion they were surrounded by about thirty natives, and some of them stripped and maltreated: one narrowly escaped assassination. They however arrived in the evening of the day at the mission house, to the great joy of the brethren who had heard of the outrage: the next day an offering of atonement was presented with a promise to restore the articles of which they had been plundered; eleven of the missionaries, however, conceiving their lives to be in imminent danger, had agreed with captain Bishop of the *Nautilus* to convey them to Port Jackson, whither they arrived after six weeks voyage. Here, however, more severe trials awaited some of them; one was robbed and dangerously wounded, another inhumanly murdered in the vicinity of Sydney. Thus was the aspect of the Otaheitan mission rendered extremely gloomy; but, notwithstanding the departure of their brethren, seven of the missionaries continued at their post.

Twelve new missionaries were sent out in the Royal Post Admiral, a ship with convicts for Port Jackson; during the voyage a putrid fever broke out amongst them, to which about forty persons, including Mr. Taylor the surgeon, and one of the brethren, fell untimely victims; the rest arrived in safety at Otaheite on the 10th of July 1801. In the beginning of the year 1802 the missionaries were able to preach in the language of the country, but at first without apparent effect; on the 3d of September, 1803, Pomarre died almost suddenly, and the death of so powerful a protector excited many apprehensions; they, however, received the assurances of the new king and his mother of every protection. During 1804 and 1805 the missionaries continued to preach the gospel: they also began to form a regular Otaheitan vocabulary, comprising upwards of 2000 words, and applied themselves to the instruction of the native children; the king, who on the demise of his father assumed the name of Pomarre, under the instruction of the missionaries learnt the art of writing, and in 1807 composed a letter to the Missionary Society in London.

The most interesting results followed the labors of the missionaries in this island, notwithstanding the repulsive and discouraging circumstances which attended the commencement of their labors. A rebellion having broken out in Matavai, in November 1808, six of the missionaries with their families retired to Huahine in a brig which happened to touch at Otaheite, and the remaining four, Hayward, Nott, Scott, and Wilson, continued with the king; they all, however, excepting Nott and Hayward, subsequently retired to New South Wales; and the mission to the South Sea Islands was to all outward appear-

ance finally given up; but, during their residence in New South Wales, Pomarre wrote repeatedly entreating them to return; which, tranquillity being restored between him and his subjects, they accordingly did. This was the dawn of that bright day, which was to shed the light of Christianity on these benighted people. On their return they found that the king had cast away his idols and observed the Christian sabbath; that he entertained clear views of the gospel; expressed great contrition for his former errors; exerted his influence to convince his relatives of the error of their superstitions, and was extremely anxious to erect an edifice for the worship of the true God. He moreover was very desirous to make his public profession of faith by receiving Christian baptism: this, however, was prudently deferred for some time that he might be more perfectly instructed in the truths of revelation. During the years 1813, 1814, more than fifty nations renounced their idols and desired to be considered as worshippers of Jehovah. Messrs. Nott and Hayward now visited the islands Huahine, Raitea, and Taha, and at the former place a young chief abjured his false gods and professed his faith.

In 1815 the congregation at Gimeo was increased to about 300; conversions to the Christian faith, and the destruction of idols, went on rapidly at Gimeo, Otaheite, Raitea, Huahine, and Tapua Mann, and at the commencement of the year 1818 fifty places of worship had been erected. On the 13th of May, 1818, a general meeting was convened in the district of Papetoia, Gimeo, in imitation of the meeting held in London, when about 2000 of the natives assembled and formed an Otaheitan Auxiliary Missionary Society; shortly after this interesting meeting the brethren, who had recently arrived from England, were conveyed to their several stations in the Windward and Leeward Islands.

The month of May 1819 was a season replete with pleasure at Otaheite; the king had erected a very extensive building at Papara, in the district of Para, and devoted it to the meeting of the Missionary society; it was called the Royal Mission Chapel: it is 712 feet long, and fifty-four wide; the middle is supported by thirty-six massy pillars of the bread fruit tree, and the outside pillars are 280; it has 133 windows with sliding shutters, and twenty-nine doors, the ends are circular; there are three square pulpits about 200 feet distant from each other; it is filled with forms, except an area before each pulpit, and laid with clean grass: the rafters are covered with a fine kind of fringed matting, which is neatly bound with cords of various colors; the whole building is surrounded with a strong fence of wood; the space between it and the building being filled up with gravel. After a preparatory meeting on the 10th, the Royal Chapel was opened on the 11th by three services at the same time; the king was present; the whole congregation stood up and sang. On Thursday the 12th the new laws were publicly promulgated in the centre of this chapel by the king in person, and unanimously approved by the raising up the right hand. On Friday, the 13th, the new Missionary Society met in the chapel:—the king as pre-

sident, and all the governors, officers, and members. On Sunday, the 16th, the congregations assembled again for divine service, and the king was publicly baptised, and received an address entreating him to walk worthy of his high profession. After the service, Pomarre shook hands affectionately with all the missionaries, who were stationed by his desire on his right and left hand; he then returned to his camp.

In May, 1821, the Rev. D. Tyerman and George Bennet esq., were deputed to visit these islands and ascertain the state of the mission; and on the 21st of September they arrived safely at Otaheite. Their report was of the most favorable kind; civilisation, instruction, and translations were all going on admirably: but during their visit king Pomarre was taken ill, and on the 7th of December Mr. Crook one of the brethren was sent for, and arrived in time to speak a few words, witness his departure, and listen to his last words. He reminded the king that Christ was a great Saviour, and could alone support in the article of death. The king replied emphatically, 'Jesus alone,' and sunk into a stupor, which terminated his life in a few hours.

Tongatoboo.—After the first missionaries were landed at Otaheite captain Wilson sailed for the Friendly Isles, and on the 10th of April, 1797, the Duff was moored in the harbour of this island; and on the 12th ten missionaries took up their residence in a house prepared for their reception: here, however, three were murdered by the natives, the remainder departed to Port Jackson in January 1800, and with one exception subsequently arrived in England. After captain Wilson had settled the missionaries at Tongatoboo, in 1797, he sailed for St. Christina one of the Marquesa Islands, with two of the brethren who had chosen it as the scene of labor; one however, disgusted with the people and place, refused to remain, and Mr. Crook a devoted and vilified missionary was left alone to pursue his work in this island. He remained seven months and returned to England in May 1799, thinking that he might render the best service to these islands by representing their real state to the directors.

It may here be worthy of observation that, at the commencement of the operations of the society, the directors expressed their intention of sending the tidings of salvation to the inhabitants of the Sandwich Isles; but the probability of so doing was precluded till the visit of the deputation to the South Seas, where those who had been appointed to a different station were irresistibly led to this scene of usefulness. Mr. Ellis communicated these particulars in his letters to the directors in London: he went to reside there at the earnest invitation of the king and chiefs, as well as some American brethren, who were already settled in this extensive field of labor. This took place in February 1823: in the autumn of the same year the king, Tamahameha, resolved to visit his Britannic majesty, and embarked in November being accompanied by his queen Kamehamara, a chief named Boki and his wife with others. Previously to their introduction to the king, however, both Tamahameha and his consort were seized with the measles,

and died within five days of each other: their bodies received a temporary interment in St Martin's church, but were afterwards conveyed by the Blonde to their native land.

South Africa and its adjacent islands.—Encouraged by their success, in the islands of the Pacific, the London Missionary Society were led to direct their attention in the next place to the continent of Africa; notwithstanding the failure of an attempt in conjunction with other societies to establish a mission in the country of the Foulahs, and the colony of Sierra Leone. The subsequent conquest of the Cape of Good Hope by the arms of his Britannic majesty seemed to present a favorable opportunity of access to the extensive regions of South Africa; but the natural obstructions to their success were very numerous and great. The number of nations and tribes into which the whole population is divided—their perpetual variances and wars—their indolent and wandering habits—the sterility of vast districts—the uncertainty of the climate—and the frequent and long continued droughts, all combined to impede the establishment of Christian churches, and their advancement in civilisation. Much, however, was done in the discovery of what is necessary to be done; and when the number of direct instances of usefulness are collected and brought into one view it will appear very satisfactory and encouraging. Dr. Vanderkemp, the son of a worthy minister of the Dutch church, in Rotterdam, being converted and called to the work of the ministry, was induced to offer his services to the society, and in company with the Rev. Messrs. Hickerer Edmonds, and Edwards, sailed for the Cape of Good Hope in the month of December, 1793, on board a transport vessel laden with convicts for New South Wales. It was the choice of the brethren to go in this vessel that they might commence their benevolent labors amongst the most miserable and abandoned of their fellow creatures; they were during the voyage exposed to great personal danger from the refractory character of the prisoners; but they became instrumental in doing much spiritual good to these wretched victims of depravity and crime: their lives also were in great jeopardy from a violent storm, but they arrived safely at the Cape and were received with great cordiality. A favorable opening soon occurred to introduce the gospel among the Boschmen, a savage and cruel nation of Hottentots, and Messrs. Hickerer and Edwards were deputed to this walk, while Dr. Vanderkemp and Mr. Edmonds should pursue their original plan of endeavouring to plant the standard of the cross in Caffraria. Dr. Vanderkemp and his colleague left Cape Town on the 29th of May, and being furnished with letters of recommendation to the landrost proceeded to Graaf Reinet. There they remained a few days, then resumed their journey to the frontier of Caffraria, and after a toilsome and dangerous route reached the residence of Geitha the king, on the 20th of September: after some disputes relative to their continuance the king granted them a tract of land on the other side of the river Keiskamina, and on the 20th of October they took possession. In December, however, not considering themselves safe in Caf-

fraria, the colonists resolved to escape, and Dr. Vanderkemp accompanied them; they arrived on the 14th of May 1801 at Graaf Reinet, where two new missionaries were anxiously awaiting the arrival of Dr. Vanderkemp to whose assistance they had been sent out: here they remained till fresh outrages and internal commotions led them to quit Graaf Reinet in February 1802, and they proceeded with 109 Hottentots under the escort of major Sherlock, to Botsa Place in the vicinity of Algoa Bay, where they had apparently reason to hope for a permanent settlement. But hence also they were obliged to flee, and they removed to Fort Frederick. The Cape being now restored to the Dutch, they waited here till the new government should assign some other spot for their residence; and on a visit from the new governor, in April 1803, he kindly assigned them a tract of land for a settlement about seven miles northward of Fort Frederick in the vicinity of a small river, which the Hottentots call Kooboo.

On their arrival at this new station Dr. Vanderkemp gave it the name of Bethelsdorp, or the village of Bethel: here they planted gardens, erected a temporary church, and houses for their own accommodation; and, in the beginning of July, commenced public worship and opened a school. Their labors were rendered successful in general, and especially in the conversion of Cupido, Boezak, and Sampson: but, in the month of April 1805, in consequence of false representations and unfounded charges made against the missionaries by the Dutch boers, the governor sent for Dr. Vanderkemp, and he and Mr. Read repaired to Cape Town, and were detained there till January 1806, when the British once more took possession of the colony. Sir D. Baird now sent for Dr. Vanderkemp, and treated him with marked respect: he soon afterwards gave the Dr. permission to return by sea to Bethelsdorp, and both himself and Mr. Read were received by their people with every demonstration of joy. In April 1811 Dr. Vanderkemp and Mr. Read were summoned before an extraordinary commission, appointed by the governor at Cape Town; and communicated to the commissioners more than 100 cases of Hottentots said to have been murdered. On the 13th of September five German brethren, with a converted black from Demerara, arrived in safety at the Cape, and were gladly received. They were considering on an arrangement for the disposal of the missionaries, when they were visited with the distressing loss of their venerable and apostolic friend Dr. Vanderkemp, who died on the 15th of December, 1811.

In consequence of this event, and the increasing importance of these stations, the society deputed one of their own body, the Rev. John Campbell of Kingsland, to visit the Cape, where he arrived on the 24th of October, 1812; and, on the 20th of March in the ensuing year, at Bethelsdorp, he found that civilisation had made considerable progress; that the natives exercised the various businesses of smiths, carpenters, sawyers, basket-makers, brush-makers, thatchers, coopers, lime-burners, &c.; he also saw cultivated fields two miles in length, on both sides of a river, and was informed that their cattle had increased

from 218 to 2206. The beneficial effects of Christianity were apparent in this despised spot in a variety of excellent institutions formed by the Hottentots; and they had contributed, during the preceding twelve months, the sum of seventy-six dollars, in aid of the London Missionary Society. When, on his second visit to these parts, Mr. Campbell, with Dr. Philip, called at Bethelsdorp in June 1819, they were much gratified at finding that the Hottentots had erected a substantial place of worship and several good houses. In 1822 and 1823 very considerable improvements were made in the erection of superior habitations: a public store was opened to preclude the necessity of the natives going to distant places to purchase goods; and, in the report communicated to the general meeting in London, in May, 1824, the accounts of their progress in industry and instruction were highly satisfactory.

On the 28th of December, 1823, his majesty's commissioners of enquiry arrived at Bethelsdorp, accompanied by their secretary: they attended divine service at the mission chapel, when Mr. Ketchingman preached from Psalm cxvi. 3. After the sermon about twenty Hottentots read the third chapter of St. John's Gospel, and were examined as to their knowledge of the scriptures: the children read a chapter, and were catechised. The English class then read a few easy lessons; when all was finished the object of the visitors was announced, and some of the old men belonging to the institution rose up to thank the king of England and them, for the interest they took in the poor Hottentots at Bethelsdorp: the honorable commissioners expressed their high satisfaction with the progress of the people, both in civilisation and the knowledge of the truths of Christianity.

Having given this sketch of the proceedings of the missionaries in the colony, near the Cape, we may observe that those beyond it, among the Caffres, Geogiras, Bushmen, Bootchuanas, and Namaquas, and in the African Islands, Madagascar and Mauritius, exhibit great patience and perseverance; an examination of the published accounts of their proceedings and labors will furnish the reader with many instances of gratifying success. The remarkable conversion, the honorable life, and the happy death of the Caffre chief, Africaner; the formation of Christian churches in seven or eight stations within the colony; and the establishment of an auxiliary missionary society at the Cape; are encouraging proofs of the utility and efficiency of such benevolent exertions: they establish, beyond the power of contradiction, that there is not a natural incapacity in the minds of Hottentots for civil, moral, and religious improvement. Much remains to induce deep and painful commiseration, but much may be anticipated to justify the assurance of hope. The other principal settlements in South Africa are Bethany, situated in Great Namaqua Land, about fifty-five miles north of the Orange River, where a mission was commenced in 1815; Steinkopff, in Little Namaqua Land, where the gospel was introduced in 1817; the Pearl, in the district of Stellenbosch, first occupied in 1819; and Cape Town, where a number of heathens attend the ministry of Dr. Phillip.

We next direct the attention of the reader to the labors of the society in *Asia*, including the *East India Islands*, with the extensive country of *China*. In the month of February, 1804, some missionaries sailed from England to commence their work on the coast of Coromandel; they selected Vizagapatam, the capital of one of the five districts into which the northern circars are divided. In 1808 they were joined by a converted brahmin, named Ananderayer, who, in the October following, went on a missionary tour to the southward, and preached the gospel to many hundreds of his countrymen. In 1809 the Rev. George Cran, one of the missionaries, died; and two, Messrs. Gordon and Lee, arrived by way of America, to join Mr. Des Grayes, who by the decease of his coadjutor had been left alone. Mr. Rengletaube, who sailed to India in 1804, selected the Tinivelly country as the scene of labor; but being precluded from going thither till February, 1806, he extended his labors into Travancore, and made that kingdom the principal seat of the mission. After laboring faithfully at this station for several years, ill-health compelled him to relinquish it; in 1816 other persons succeeded him, and in 1818 and 1819 nearly 3000 of the natives placed themselves under religious instruction. In the spring of 1810 the Rev. J. Hands arrived in India with the hope of commencing a mission to Seringapatam; but, as he could not gain access, he was induced to direct his attention to Bellary, in the northern part of the province of Mysore. In 1816 he was joined by Mr. Reeve; many additions were made to the church. In January, 1819, a Juvenile Bible Society was formed in this place; and during the year the gospel was carried several hundred miles through the dark villages, and several thousand tracts were distributed. Messrs Hands and Reeve are advancing with the Canara version of the Old Testament; and Mr. Reeve has undertaken a compilation of a Canarese and English Dictionary. Besides these stations, others have been established in various parts of the East Indies, as at Chinsurah, Madras, Surat, Calcutta, Bangalore, Benares, Belgaum, Quilon, Cuddapat, and Seringapatam.

China.—In order to convey the glad tidings of the Christian salvation to this populous and benighted empire, the London Society resolved to attempt a translation of the Holy Scriptures; the Rev. Robert Morrison was selected for this arduous work, and was assisted in London by a native of China in learning the language and transcribing a harmony of the gospels and other parts of the New Testament from a MS. copy in the British Museum. His attention was also directed to mathematics and astronomy. In the month of January, 1807, Mr. Morrison sailed from England, and arrived in safety at Canton, where he remained till, from a misunderstanding between the European residents at Canton and the Chinese government, all intercourse with foreigners was prohibited. Mr. Morrison, therefore, retired in the beginning of November to Macao, where he applied himself unremittingly to the study of the language. Matters being amicably arranged, our missionary returned to

Canton, and in 1809 was appointed Chinese translator to the English factory. He found the ideas of the Chinese exceedingly obscure with respect to the nature of the true and living God. In September, 1810, Mr. Morrison sent the Acts of the Apostles carefully revised with the Greek text to a Chinese printer, and agreed to pay him 521 dollars for 1000 copies, including the cutting of 30,000 characters, the wood on which they were to be cut, the paper, printing, and binding. When this little work was completed, three ambassadors from the Leki-yo islands, coming to China with tribute, arrived just in time to be presented with some copies. The vernacular tongue of these islands is a dialect of the Chinese language, which is read by the literati. In April, 1812, Mr. Morrison, who had previously forwarded a translation of the Gospel by St. Luke, and a Chinese tract on the way of salvation, now sent a translation of a Chinese edict, declaring the printing of books on the Christian religion in China a capital crime. In the summer of 1814 Mr. Morrison travelled, in the suite of the British embassy, through six provinces of China. This occupied about six months; the embassy arrived at Canton on its return in January, 1817. In September, of the same year, Mr. Morrison says, in a letter to the society, 'I have translated the morning and evening prayers of the church of England, as helps for devotion. The church of Scotland supplied us with a catechism: the congregational churches with a form for Christian assembly. We are of no party; we recognize but two divisions of our fellow-creatures, the righteous and the wicked, those who love our Lord Jesus Christ, and those who do not.' In a letter dated March, 1819, Dr. Morrison observes, that he had recently written a small book, called *A Voyage Round the World*, to this he added a map of the world; but the printer, in copying that part in which Judea was mentioned as the place where Jesus the Saviour was born, obliterated the name of Jesus, probably through fear. In 1820 Dr. Morrison opened at Macao a dispensary for the Chinese sick poor; it became very popular; but, after the return of his family from Europe, our missionary found his time inadequate to its continuance. From the year 1813 the gospel has been more or less regularly preached both in English and Chinese at Macao or Canton; and, besides the advantages derived by European or American residents, these services have not been destitute of beneficial results to some Chinese themselves. In 1823, on the 9th of December, Dr. Morrison embarked for England, where he arrived in safety on the 20th of March; he was presented to the king by the president of the Board of Control, and permitted to lay before his majesty the Chinese version of the Holy Scriptures, made by himself and the late Dr. Milne, and an account of the Anglo-Chinese College at Singapore. His majesty was pleased to convey the expression of his marked approbation. Dr. Morrison had intended to return to China about the latter end of 1824, but consented to remain in England for the purpose of communicating elementary instructions in the Chinese language

and conferring with those who might be desirous of becoming acquainted with it for sacred purposes, or objects of general knowledge and literature.

Malacca.—In the autumn of 1812 the Rev. W. Milne sailed from England to assist Dr. Morrison in his missionary labors in China: he was, however, through the influence of some Catholic priests, obliged to retire from Macao to Canton. He afterwards visited Java, and, having distributed books in great numbers in Batavia, he made a tour through the east of Java and the island of Madura. On his return to China he determined, with the concurrence of Dr. Morrison, to settle at Malacca; accordingly he and Mrs. Milne embarked in April 1815, and, on the 22nd of May, arrived at his destination; he commenced his labors with a charity school for poor Chinese boys, who were instructed in the elementary books common in China, together with writing and arithmetic according to the Chinese method. In January Mr. Milne paid a visit to Penang, or Prince of Wales' Island, and, during his stay, distributed tracts, testaments, &c. On his return to Malacca, in February, he opened two new schools, containing about eighty boys, and introduced the method of writing in sand. In April Mr. Milne distributed some tracts and testaments on board some junks from Siam and Cochin China; in November a Chinese, named Leang Kung Fah, was baptised; in the course of the same month he opened a Thursday evening lecture in the temple Ta-pek-Kung. On the 11th of November, 1818, major Farquhar, commandant of Malacca, laid the foundation stone of an institution called the Anglo-Chinese College, in the presence of the governor of the colony; the chief objects of this institution are the cultivation of Chinese and English literature, and the diffusion of Christianity in the countries and islands eastward of Penang: it owes its origin to Dr. Morrison, who generously devoted the sum of £1000 sterling to the erection of the building, and promised an additional sum of £100 annually, for the first five years, commencing from the opening of the college. This establishment is to be known in future by the name of the Singapore Institution; and in that promising seat of learning the five principal languages of the inhabitants of that part of the globe are to be taught, spoken by not fewer than 300,000,000 of the human race. In March, 1819, Mr. Milne lost his amiable and pious wife; and in 1822, at the beginning of the year, the society sustained the severe loss of his own death. In the month of January, 1819, Mr. Medhurst, who had previously assisted Dr. Milne at Malacca, embarked for Penang; and in 1823 a chapel was erected by subscription for Chinese, Malay, and English worship; the estimated expense was 6000 Spanish dollars: nearly half the sum was raised on the spot, including a donation of 400 dollars from his excellency governor Phillips. The foundation stone was laid on the 11th of June; and, in the course of the summer, the chapel was attended by large and respectable congregations.

Java.—The society, anxious to circulate Dr. Morrison's translations of the Holy Scriptures,

and extend the knowledge of Christianity through the island of Java, the residence of about 100,000 Chinese, sent out missionaries to Batavia, the principal city, and they embarked accordingly on the 31st of December, 1813: these missionaries saw the fruit of the books circulated by Mr. Milne; and here, as well as in the island of Amboyna, prosperity followed their labors. In October, 1819, Mr. Milton removed from Malacca to Singapore, the town and principality of which were originally founded by some adventurers from the island of Sumatra, but which had recently been ceded to the English. Here Mr. Milton established a Christian mission, and his design received the patronage of Sir Stamford Raffles, and W. Farquhar, esq., who gave a piece of land for the object. In 1822 Mr. Thomson removed to this station to take charge of the Malay department, and a place of worship was commenced for services both in the Chinese and Malay languages. In January, 1823, Dr. Morrison visited this station in his way to Malacca, and had several interviews with Sir S. Raffles, who expressed an earnest desire for the removal of the Anglo-Chinese College to Singapore, and that it should be united with a Malayan college to be founded in the settlement, which was eventually done; and the Singapore institution thus formed was to consist of the following departments: 1. A scientific department for the common advantage of the several colleges that may be established; 2. A literary and moral department for the Chinese; and, 3. A literary and moral department for the Siamese, Malay, &c. In the same year Mr. Milton went to Calcutta to purchase presses and other articles for printing; and, on his return, the printing of a Siamese version of Genesis was immediately commenced. About this time the government ordered 200 acres of land to be enclosed for settling and employing such persons as might be desirous of receiving Christian instruction; and directed that converts to Christianity should be admitted to burial in the European cemetery.

The mission to *Demerara* commenced in December, 1807; that to Madagascar in 1818.

A few particulars may be stated respecting each. The success which attended the preaching of the gospel in Demerara, during the year 1808, continued to increase and abound; so that, early in the ensuing spring, the number of slaves admitted into the church by baptism amounted to twenty-four. Mr. Wray had been sent hither at the solicitation of Mr. Post, a respectable and pious Dutch planter, who resided on the east coast of the colony; this excellent man died on the 29th of April, deeply mourned, and deservedly lamented. Mr. Wray says, 'a more affecting scene was perhaps never presented; more than 500 negroes of his own, and from other estates, bitterly lamenting his loss.' Mr. Post secured to the use of this mission the chapel and dwelling house of the minister; and assigned the sum of £100 sterling toward the minister's support, so long as the London Society shall continue to provide a missionary for that station who shall preach the doctrine of the reformed church. On the 25th of May the colonial government issued a proclamation prohibiting

the slaves, under severe penalties, from assembling together before sun-rise or after sun-set; this regulation had an injurious influence in circumscribing the usefulness of the missionary, and Mr. Wray paid a visit to England that a respectful representation of this grievance might be laid before his majesty's government; an official letter was in consequence transmitted to the governor of Demerara, signifying the determination of the government at home that slaves should be allowed to meet every Sunday for worship and instruction, from five in the morning to nine in the evening; and, on other days, from seven to nine in the evening, provided they had permission of their respective masters. This interposition was immediately and readily attended to by the governor, who expressed himself very favorable to the missionaries and their exertions, and it was followed by very salutary effects among the slaves. Mr. Wray, with the consent of the directors, afterwards removed to Berbice; and in January, 1817, Mr. John Smith was sent out by the directors to fill the vacant station, which he continued to occupy, with much usefulness and prosperity, till May 1823, when circumstances arose, of a very painful nature, which have been before the public in all their affecting details, and which led to the termination of his valuable services and life, in the month of February, 1824. The sensation occasioned by this event was communicated to the whole British nation, and it occupied the consideration of the British parliament; and, from the opinions expressed by the leading members of government on that occasion, it is believed the cause of Christian missions will derive important and lasting benefits.

The mission to *Madagascar* was commenced by Bevan and Jones in 1818. They opened a school at Tamatave, and every thing appeared promising and auspicious; but, in the space of a few months, five individuals were carried to an untimely grave, and Mr. Jones, after a partial recovery from the Malagache fever, was compelled to return to the Mauritius. In September, 1820, Mr. Jones returned in company with Mr. Hastie, a gentleman sent by the governor to negotiate with king Radama for the abolition of the slave trade in his dominions. He consented to the proposed treaty, on condition that he should be allowed to send some of his people to the Mauritius and England for instruction, and that artificers should be sent over to him; this request was repeated, and he finally determined to agree in all respects, on condition that Mr. Hastie would take twenty of his subjects for instruction, ten to proceed to Mauritius, and ten to England, and thus a wide door was opened to civilisation and Christianity in Madagascar. His majesty addressed a letter to the directors of the London Missionary Society, to solicit missionaries and artisans; and at the annual meeting in London, in May 1821, the directors and members had the gratification of seeing among them prince Rataffe, the brother-in-law and prime minister of Radama, who had been previously presented to his Britannic majesty at the drawing room. He was attended, on this occasion, by his secretary and interpreter, and four of the youths who

had been sent to England for instruction. These youths were subsequently placed, at the expense of government, in the British and Foreign School, with a view to their learning to read and write the English language. On the 6th of August, in the same year, prince Rataffe, accompanied by the Rev. J. Jefferies and four artisans, sailed to Madagascar. On the 6th of May following they landed at Tamatave, and proceeded, on the 21st, to the interior, where they were received by the king in the most gracious manner, and land was allotted to their use. Of the Malagache youths, one died in England in 1824, leaving behind pleasing evidence of conversion, and three left England for their own country, of whom two were in ill health, which rendered their return indispensable; one was baptised previously to his embarkation; and the remaining three are diligently employed in acquiring a knowledge of their respective trades.

In addition to various stations already noticed the society has sent out laborers to many other parts of the globe: it has devoted missionaries at St. Petersburg and Selinginsk, in Russia; at Corfu and Malta, in the Mediterranean; at George Town, in Demerara; at New Amsterdam, in Berbice; and at the island of Mauritius.

The present state of the missions, considered as a whole, is highly satisfactory. According to the returns received from the South Sea Islands the number of baptised, for the year ending May 1827, was upwards of 300, and the additions to the churches between 300 and 400. Pomarre III., and two native distinguished warriors, died during the year, converts to the Christian faith. The gospel by Mark has been printed; also the epistles to the Galatians, Philemon, and Hebrews, and of James and John. The book of Revelation is in the press; the Book of Judges, and the two Books of Samuel, have been revised. Isaiah, the Psalms, and some other epistles, are under revision.

From the islands of Raiavai, Harvey Islands, Marquesas, Friendly Islands, &c., the intelligence is satisfactory and encouraging.

Sandwich Islands.—The mission in this groupe continues to flourish greatly. The labors of the Tahitian teachers are very useful, and meet the approbation of the American missionaries.

New South Wales.—Considerable progress is made in the language of the aborigines; but the great expense, unless aid can be obtained from the local government, renders its continuance doubtful.

ULTRA GANGES. China.—Dr. Morrison has arrived safely at Macao. During his absence Leangafa had composed notes on the Epistle to the Hebrews; an Essay on the true Principles of the World's Salvation; and An Account of Interesting Conversations with his Countrymen.

Malacca.—Native Schools are seven, containing about 250 boys, who make good progress. The number of students in the Anglo-Chinese College, in June 1826, was nearly thirty. *Java* has three Chinese schools. The Chinese, Malayan, and English, services are continued. The subjects of the mission publications are now discussed by the Chinese themselves in the absence of the missionary. *Amboyna*.—Seven native

teachers have been lately sent hence to different islands of the Malayan Archipelago. Mr. Kam's translation of the first volume of Mr. Burder's Village Sermons is in circulation.

EAST INDIES. *Calcutta*.—In the Christian seminary, which has been restricted to the descendants of native Christians, three youths are under instruction, and a speedy addition to their number is expected. In *Bengal* the mission schools make encouraging progress; the stated native services are continued in the towns, and occasional preaching in surrounding villages. Mr. Mundy has composed, in Bengalee, a concise View of the Christian Religion, and a Catechetical Exposition of the Gospel by St. Mark. *Berhampore*.—Here are inveterate prejudices to overcome. There are eight schools; six for boys, containing 280, and two for girls, containing forty. About thirty persons have become converts, and a Christian church has been formed. *Benares*.—Here are four native schools, containing 206 boys, all in a prosperous state: a substantial mission-house has been erected. *Surat*.—Six native schools; boys under instruction about 350. A society has been formed at Bombay called the Bombay Missionary Union; the remaining stations are Madras, Vizagapatam, Coniboconum, Cuddapah, Chitoor, Belgaum, Belari, and Bangalore in South Travancore, Nagercoil, and Quilon.

AFRICA.—The Rev. Dr. Phillip still remains in this country. Mr. Miles has visited several missionary stations in the interior, and extended his journey to Caffreland, and the country of Tambookies. Caffraria presents a promising field for missionary enterprise. At Bethelsdorp the amount of subscriptions to the auxiliary society, for the year ending May 1826, was 260 rix dollars. The stations here are numerous:—Paarl, Tulbach, Roscheffeld, Pacaltsdorp, Hankey, Bethelsdorp, Theopolis, Caffraria, Griqua Town, Campbell, Philippolis, Lattakoo, Africander's Kraal, Bethany, Steinkopf, Pella, and the Islands of Mauritius and Madagascar. In the latter island his majesty Radama continues to take a lively interest in the mission; and the rapidly advancing importance of this station has induced the directors to accept the services of the Rev. J. J. Freeman, late minister of the Gospel at Kidderminster, on the principle of limited service.

WEST INDIES.—At *Demerara* the labors of Mr. Davies, lately deceased, were attended with success: the average attendance at his chapel in George Town was about 400 negroes, the number in church fellowship 130, and in the school 300 adults and 100 children. At *Berbice* the number of adults baptised during 1826 was forty-one; the number in the school, at the close of 1826, was 230, and many have since been admitted. The total number of children in the native schools, in connexion with the several missionary stations, besides numerous adults, is upwards of 12,000.

LONDON, New, a county of Connecticut, in the United States. Its population is 34,107. Its chief towns are New London and Norwich; the former situated on the west bank of the Thames, three miles above its mouth. It has an excel-

lent harbour defended by two forts, and is one of the most commercial towns in Connecticut. It is fifty-four miles east of Newhaven, and 237 north-east by east of Philadelphia.

Also a post town of the United States, in Rockingham county, New Hampshire, containing a respectable and well endowed academy. It is twenty-five miles S. S. E. of Concord, and thirty-five W. S. W. of Portsmouth.

LONDONDERRY, a county of Ireland, is bounded on the south by Tyrone; on the west by Donegal; on the north by the Scottish Sea; and on the east by Antrim, from which it is separated by Lough Neagh, and the river Bann. Its figure is that of an irregular triangle about forty English miles from north to south, and about thirty-one in breadth, including an area of 511,688 English acres, and 798 square miles. It is divided into four baronies, Terkerin, Kenauight, Loughlinsholin, and Coleraine, and thirty-one parishes. About a fourth part of the county is bleak mountains and glens; and even half the remainder is mountainous, a range of mountains running from the northern coast the whole length of the country southwards. But fertile plains and valleys are interspersed between the mountains, composed of rich loams, and gravels, clay, marl, and moor. The mountainous region is diversified by many alpine tracts, interspersed with spots of peat, many of which are reclaimable. There are schistose ridges on the western side of the Roe, near the bed of which marly flats run along almost the whole length of the river. Near Lough Foyle and Lough Neagh they are in general sandy or loamy. These are much occupied as rabbit warrens, which yield, on an average, about 36,000 rabbits annually, the sale of whose skins produces a large revenue. Good pasture has been produced by the burning of the heathy soils in some places; and excellent crops of oats are raised on the low lands, by the same practice. The principal mountains are, in the north, Benyevenagh, which is 1250 feet high; Sawel, towards the south, 1600 feet in height; Benbrodagh, in the centre of the county, 1300 feet in height; Alt English, at some miles distance, of the same height; Slieve Gallen, 1250 feet in height; Donald's hill, 1200 feet.

The system here adopted of letting land on short leases is not calculated to promote agricultural improvement. The arable land is divided and subdivided into the smallest portions, from 250 to a single acre. The great proportion of it is let in parcels containing from three to thirty acres Irish. Potatoes is the principal crop; but on some of the clay grounds wheat is raised, and oats, barley, flax, and rye, occasionally appear. The land is every where destitute of fences, but small plantations are met with in many places. The minerals of this county deserve attention. Basaltic layers, with veins of white lime, clays, zeolite, &c., are found to the east of the river Roe; granite is often found, and in the interior of the county freestone and sandstone; also the beautiful rock crystals, called Irish diamonds. Iron is also in great abundance throughout the county; but the only work ever established for

smelting it was afterwards abandoned. Small quantities of copper and lead have been also found, and coal seems to appear in various parts. The linen manufacture is the staple of the county: and woollen cloth is manufactured at home by the poorer part of the peasantry. The principal rivers are the Foyle or Green River: it is a wide and deep stream; and, after having divided the counties of Tyrone and Donegal, enters this county, a little above the city of Londonderry, and, passing it, expands into the large lake known by the name of Lough Foyle. The Bann, or the White River, flows from Lough Neagh towards the town of Coleraine, four miles below which it meets the sea, over a shallow bar. The Faughan and Roe, which rise in the Cairntogher Mountains, flow into Lough Foyle. Among the streams which join the Bann in its course, or increase the waters of Lough Neagh, is the Mayola. Lough Foyle affords a tolerably good harbour, though there is some difficulty of entering it when a strong wind blows from the west. It is a large oval basin, twelve miles long, and nearly seven broad in the widest part, but it has only one deep channel in the middle, between long banks of sand. The Bann affords a harbour for small vessels up to Coleraine; but Portrush, four miles below it, is generally preferred for vessels of burden. The chief towns, besides Londonderry, are Coleraine, Newton-limavady, Magherafelt, Dungiven, Moynemore, Castle-Dawson, Maghera, Garvagh, Desartmartin, &c.

LONDONDERRY, the capital of the above county, is situated on the west bank of the Foyle, and contains four main streets, which cross at right angles within the walls, and form, with the smaller streets and lanes, a sort of parallelogram, extending 1273 feet by 635. The streets issue from the exchange, and terminate at a gate denominated from them. The ground on which the town stands is hilly and uneven; but great attention has been paid to the paving and lighting of the streets. The old walls, which were built in the year 1614, still remain. On the top of the rampart is a platform covered with a noble parapet. The cathedral is a Gothic structure, built in the year 1633. The tower was lately ornamented, or at least surmounted, with a spire; it has an organ which is esteemed valuable. There are, beside the cathedral, a chapel of ease, two presbyterian meeting houses, and a Roman Catholic chapel. The central market house, or town hall, was built in 1692, over which were the courts of justice; but it has been superseded by a spacious and handsome architectural structure, recently erected for these purposes. The new gaol is esteemed one of the best in the north of Ireland; and the episcopal palace is spacious. Schools for the education of the lower classes have been recently built, and an infirmary has been lately erected on a very large scale. There is a small theatre and linen hall. The chief wharfs and quays, with a good portion of the city, are without the walls. In 1790 a very handsome wooden bridge, upwards of 1000 feet in length, and forty in breadth, was here thrown across the Foyle, a great part of which was thrown down by the ice in 1813. An ex-

tensive commercial intercourse is carried on between Londonderry, the West Indies, and America. The imports are West India produce, hardware, earthenware, flax seed, iron, and timber: the exports yarn, linen, &c. In the harbour there is at all times fourteen fathoms of water.

Both the abbey and town of Londonderry are of great antiquity; and are said to have been burned by the Danes in the year 783. In 1158 it was made an episcopal see; and the cathedral was erected six years afterwards. In 1515 its charter was granted to the London Company. In 1608 it was burned by an Irish chieftain, but the walls were soon re-erected; and in 1641 it was besieged and rescued from the Irish, by whom, however, it was taken in 1649. In 1688 it sustained from the Irish forces, under king James, a siege, which lasted from the month of December 1688 till August 1689; and it was on the eve of being surrendered by the governor, when the inhabitants chose for their governors the Rev. George Walker, an episcopal clergyman, and major Baker. Under these intrepid chiefs the town resisted to the last, and until all the efforts of king James's forces proved abortive. The corporation consists of aldermen, a mayor, twenty-four burgesses, one chamberlain, and two sheriffs. It is 115 miles N. N. W. of Dublin, and fifty-eight W. N. W. of Belfast.

LONDONDERRY (Robert Stewart, marquis of), the second son of the first marquis, was born in the north of Ireland, June 18, 1769, and was educated at Armagh, after which he became a commoner of St. John's college, Cambridge. On leaving the university, he made the tour of Europe, and, on his return, was chosen a member of the Irish parliament. He joined the opposition, in the first place, and declared himself an advocate for parliamentary reform; but, on obtaining a seat in the British parliament, he took his station on the ministerial benches. In 1797, having then become lord Castlereagh, he returned to the Irish parliament, and, the same year, became keeper of the privy seal for that kingdom, and was soon after appointed one of the lords of the treasury. The next year, he was nominated secretary to the lord-lieutenant, and, by his strenuous exertions, and abilities in the art of removing opposition, the union with Ireland was greatly facilitated. In the united parliament, he sat as member for the county of Down, and, in 1802, was made president of the board of control. In 1805, he was appointed secretary of war and the colonies; but, on the death of Mr. Pitt, he retired, until the dissolution of the brief administration of 1806 restored him to the same situation in 1807; and he held his office until the ill-fated expedition to Walcheren, and his duel with his colleague, Mr. Canning, produced his resignation. In 1812, he succeeded the marquis of Wellesley as foreign secretary, and the following year proceeded to the continent, to assist the coalesced powers in negotiating a general peace. His services after the capture of Napoleon, and in the general pacification and arrangements which have been usually designated by the phrase the 'settlement of Europe,' form a part of history. It is suffi-

cient to notice here, that he received the public thanks of parliament, and was honored with the order of the garter. On the death of his father, in April, 1821, he succeeded him in the Irish marquise of Londonderry, but still retained his seat in the British house of commons, where he acted as leader. After the arduous session of 1822, in which his labor was unremitting, his mind was observed to be much shattered; but, unhappily, although his physician was apprised of it, he was suffered to leave London for his seat at North Cray, in Kent, where, in August, 1822, he terminated his life by inflicting a wound in his neck, with a penknife, of which he died almost instantly. This statesman has been censured for a severe, rigid, and persecuting government, and for an undue countenance of despotic encroachment and arrangement as regards the social progress of Europe. His party and supporters, in answer to these strictures, for the most part, plead political necessity and expediency, while no small portion of them defend his views on the ground of principle. He was an active man of business, and a ready, although not an elegant, orator. His remains were interred in Westminster abbey, with great ceremony, but not without an exhibition of popular ill-will.

LONE, *adj.* From **ALONE**. Solitary; **LONELINESS**, *n. s.* } single; unfrequented:
LONE'LY, *adj.* } loneliness and lonesomeness
LONE'NESS, *n. s.* } mean solitude; solitary
LONE'SOME, *adj.* } disposition: lonely, solitary, or addicted to solitude: lonesome, dreary; dismal.

LONG, *adv.* Sax. *gelang*, a fault. By the fault; by the failure. Obsolete, but a 'truly English' word, says Dr. Johnson.

Respective and wary men had rather seek quietly their own, and wish that the world may go well, so it be not *long* of them, than with pains and hazard make themselves advisers for the common good.

Hooker.

LONG, *adj. & adv.* Sax. *long*; **LONGANIM'ITY**, *n. s.* Gothic, *lung*; **LONG-BUAT**, *n. s.* Fr. *long*; Ital. *longe*; Latin, *longus*. Pro-
LONGEV'ITY, *n. s.* } tracted; of con-
LONG'SOME, *adj.* } siderable length
LONG-SUF'FERING, *adj. & n. s.* in space, time,
LONG'TAIL, *n. s.* or measure-
LONGWAYS, *adv.* ment; not soon
LONG-WIND'ED, *adj.* terminating or
LONGWISE, *adv.* ceasing; hence
dilatatory, tedious; as an adverb, to a great length; not soon; at a distant point of time; continuously, throughout: longanimity and long-suffering mean forbearance; patience of offence, or suffering: longevity (Lat. *longævus*), length of life: longimanous (Lat. *longimanus*), long-handed: longimetry, the art of measuring lengths or distances: lonsome, tedious: long-tail, in Shakspeare, 'cut and long-tail,' a cant term for one or another. 'A phrase, I believe, taken from dogs, which, belonging to men not qualified to hunt, had their tails cut.'—Johnson. Longways and longwise, in a longitudinal direction: long-winded, long-breathed; dilatatory; tedious; wordy.

Them among
There sat a man of ripe and perfect age,
Who did them meditate all his life long.

Fuerrie Queene.

Some say, that ever 'gainst that season comes,
Wherein our Saviour's birth is celebrated,
The bird of dawning singeth all night long,
And then, they say, no spirit walks abroad.

Shakspeare.

He will maintain you like a gentlewoman.
— Aye, that I will, come cut and longtail under the degree of a squire. *Id. Merry Wives of Windsor.*

They found the war so churlish and lonsome, as they grew then to a resolution, that, as long as England stood in state to succour those countries, they should but consume themselves in an endless war.

Bacon's War with Spain.

With mighty barres of long-enduring brass.

Fairfax.

Doubts and fears are the sharpest passions: through these false optics all that you see is like the evening shadows, disproportionable to the truth, and strangely longer than the true substance. *Sucklin*

He was laid upon two beds, the one joined longwise unto the other, both which he filled with his length. *Hakewill.*

Certainly, God is wonderfully gracious, as he is also infinitely just, even to those that will needs incur damnation, having tendered unto them many powerful helps to their repentance; which he hath with much patience and longanimity expected.

Bp. Hall.

That innocent and holy matron had rather go clad in the snowy white robes of meekness and longanimity, than in the purple mantle of blood.

Howel's England's Tears.

These, as a line, their long dimensions drew,
Streaking the ground with sinuous trace. *Milton.*

They open to themselves at length a way
Up hither, under long obedience tried. *Id.*

Long and ceaseless hiss.

But first a long succession must ensue. *Milton.*

It had overcome the patience of Job, as it did the meekness of Moses, and surely had mastered any but the longanimity and lasting sufferance of God.

Browne's Vulgar Errors.

The villainy of this Christian exceeded the persecution of heathens, whose malice was never so longimanous as to reach the soul of their enemies, or to extend into the exile of their elysiums. *Browne.*

We made the trial in a long-necked phial left open at the top. *Boyle.*

If the world had been eternal, those would have been found in it, and generally spread long ago, and beyond the memory of all ages. *Tillotson.*

And long it was ere he the rest could raise,
Whose heavy eyelids yet were full of night.

Dryden.

The martial Ancus

Furbished the rusty sword again,

Resumed the long-forgotten shield. *Id.*

No man has complained that you have discoursed too long on any subject, for you leave us in an eagerness of learning more. *Id.*

They first betray their masters, and then, when they find the vessel sinking, save themselves in the longboat. *I. Strange.*

It may help to put an end to that long-agitated and unreasonable question, whether man's will be free or no? *Locke.*

Eldest parents signifies either the eldest men and women that have had children, or those who have longest had issue. *Id.*

That those are countries suitable to the nature of man, and convenient to live in, appears from the *longevity* of the natives. *Ray on the Creation.*

Say, that you once were virtuous long ago? *Id.*

A frugal, hardy people. *Philip's Briton.*

This island stands as a vast mole, which lies long-ways, almost in a parallel line to Naples. *Addison on Italy.*

Reduce, my muse, the wandering song; *Id.*

A tale should never be too long. *Prior.*

When chilled by adverse snows and beating rain, We tread with wearied steps the longsome plain. *Id.*

At the first descent on shore, he did countenance the landing in his *longboat*. *Wotton.*

We infer from the mercy and *longsuffering* of God, that they were themselves sufficiently secure of his favour. *Rogers.*

The instances of *longevity* are chiefly amongst the abstemious. *Arbuthnot on Aliments.*

Our two eyes are like two different stations in *longimetry*, by the assistance of which the distance between two objects is measured. *Cheyne's Philosophical Principles.*

A ponderous mace,

Full twenty cubits long, he swings around. *Pope.*

Heaven restores

To thy fond wish the long-expected shores. *Id.*

My smile you minded,

Which, I confess, is too *longwinded*. *Swift.*

Long sentences in a short composition are like large rooms in a little house. *Shenstone.*

Absurd *longevity*! More, more, it cries: More life, more wealth, more trash of every kind. *Young.*

But Beatoun had enjoyed powers too long to be a favourite of the nation. *Robertson's History of Scotland.*

Fain would I hide what I fear to discover,

Yet long, long too well have I known:

All that has caused this wreck in my bosom,

Is Jenny, fair Jonny alone. *Burns.*

Another consequence of such a bill would be a *longer* residence of the bishops in their several dioceses. *Bp. Watson.*

And if we do but watch the hour,

There never yet was human power

Which could evade, if unforgiven,

The patient search and vigil long

Of him who treasures up a wrong. *Byron.*

LONG, *v. n. & adj.* Sax. *langian*, of Germ.

LONG'ING, *n. s.* } *gelangen*, to ask; beg.—

LONG'INGLY, *adv.* } Skinner, Ex Gal. *loing*,

LONG'LY, *adv.* } i. e. *longinquam*.—Min-

sheu. To desire eagerly or earnestly, taking *for* or *after* before the object: as an adjective it signifies desiring; eager. Longly is used for longing by Shakspeare.

And thine eyes shall look and fail with *longing* for them. *Deut. xxviii. 32.*

The great master perceived that Rhodes was the place the Turkish tyrant *longed after*. *Knolles.*

Master, you looked so *longly* on the maid,

Perhaps, you mark not *what's* the pith of all. *Shakspeare.*

Fresh expectation troubled not the land

With any *longed for* change, or better state. *Id.*

I have a woman's *longing*,

An appetite that I am sick withal,

To see great Hector in the weeds of peace. *Id.*

If the report be good, it causeth love,

And *longing* hope, and well-assured joy. *Davies.*

When within short time I came to the degree of uncertain wishes, and that those wishes grew to unquiet *longings*, when I would fix my thoughts upon nothing, but that within little varying they should end with Philoclea. *Sidney.*

Praying for him, and casting a *longing* look that way, he saw the galley leave the pursuit. *Id.*

His sons, who seek the tyrant to sustain,

And *long for* arbitrary lords again,

He dooms to death deserved. *Dryden's Æneid.*

To his first bias *longingly* he leans,

And rather would be great by wicked means. *Dryden.*

The will is left to the pursuit of nearer satisfactions, and to the removal of those uneasinesses which it then feels in its want of, and *longings after* them. *Locke.*

There's the tie that binds you;

You *long* to call him father: Marcia's charms

Work in your heart unseen, and plead for Cato. *Addison's Cato.*

Else whence this pleasing hope, this fond desire, This *longing after* immortality? *Id.*

Nicomedes *longing for* herrings, was supplied with fresh ones by his cook, at a great distance from the sea. *Arbuthnot.*

To thee my soul shall pour its prayer,

And ere the dawn has streaked the sky,

To thee direct its *longing* eye. *Merrick's Psalms.*

—then, even then,

I *longed*, and was resolved to speak;

But on my lips they died again,

The accents tremulous and weak,

Until one hour. *Byron.*

LONG (Roger), D. D., a native of Norfolk, was educated at Cambridge; where he became master of Pembroke Hall, and Lowndes professor of astronomy. He was also rector of Cherryhinton in Huntingdonshire, and of Bradwell in Essex; and was author of a Treatise of Astronomy, and the inventor of a very curious astronomical machine, thus described by himself:—‘I have, in a room lately built in Pembroke Hall, erected a sphere of eighteen feet diameter, wherein above thirty persons may sit conveniently; the entrance into it is over the south pole by six steps; the frame of the sphere consists of a number of iron meridians, not complete semi-circles, the northern ends of which are screwed to a large round plate of brass, with a hole in the centre of it; through this hole, from a beam in the ceiling, comes the north pole, a round iron rod about three inches long, and supports the upper parts of the sphere to its proper elevation for the latitude of Cambridge; the lower part of the sphere, so much of it as is invisible in England, is cut off; and the lower or southern ends of the meridians, or truncated semi-circles, terminate on, and are screwed down to, a strong circle of oak, of about thirteen feet diameter; which, when the sphere is put into motion, runs upon large rollers of lignum vitæ, in the manner that the tops of some windmills are made to turn round. Upon the iron meridians is fixed a zodiac of tin painted blue, whereon the ecliptic and heliocentric orbits of the planets are drawn, and the constellations and stars traced: the Great and Little Bear and Draco are already painted in their places round the north pole; the rest of the constellations are proposed to follow; the

whole is turned round with a small winch, with as little labor as it takes to wind up a jack, though the weight of the iron, tin, and wooden circle, is about 1000 lbs. When made use of, a planetarium will be placed in the middle. The whole, with the floor, is well supported by a frame of large timber. All the constellations and stars of the northern hemisphere, visible at Cambridge, are painted in their proper places upon plates of iron joined together, which form one concave surface.' Dr. Long published a Commencement Sermon in 1728; and an answer to Dr. Galley's Pamphlet on Greek Accents. He died December 16th 1770, aged ninety-one.

LONG (Edward), the historian of Jamaica, was born at St. Blaize in Cornwall, in 1734, being the son of a gentleman who possessed estates in that island. He was brought up to the law; and on the death of his father, in 1757, proceeded to Jamaica, where he became secretary to Sir Henry Moore his brother-in-law, and lieutenant governor of the island. In 1769 he was obliged to return to England for his health, where he devoted the remainder of his life to literary pursuits, and particularly to the completion of his History of Jamaica, published in 1774, in 3 vols. 4to. In 1797 he resigned his office, and died March 13th, 1813, at the house of his son-in-law, Henry Howard Molyneux, esq., of Arundel Park, Sussex. Mr. Long also wrote a collection of essays, entitled *The Præter*; a novel called *The Antigallican*; *Letters on the Colonies*; and various minor pieces.

LONG (James Le), a French writer of the seventeenth century, born in Paris in 1665. He was a priest of the oratory, and librarian of St. Honore. He published, 1. *Bibliotheca Sacra*, 2 vols. folio, 1723; 2. *Bibliothèque de la France*, folio; 3. *A Historical discourse on Polyglott Bibles*. He died at Paris in 1721.

LONG ISLAND, an island in Penobscot Bay, on the coast of Maine; twelve miles long, and two broad. Also a small island near the coast of Virginia, at the mouth of York River. Long. 76° 35' W., lat. 37° 16' N.

LONG ISLAND, an island belonging to the state of New York, extending east from the city of New York 140 miles. It is not more than ten miles in breadth on a medium, and is separated from Connecticut by Long Island Sound. The island is divided into three counties; King's, Queen's, and Suffolk. Long. 72° to 74° W., lat. 40° 50' N. Population 48,751. Sag-Harbour is the principal port. The south side of the island is flat land, of a light sandy soil, bordered on the sea coast with large tracts of salt meadow. The soil, however, is well calculated for raising grain, especially Indian corn. The north side of the island is hilly, and of a strong soil, adapted to the culture of grain, hay, and fruits, and the eastern part is remarkably adapted to the growth of wood, and supplies, in great part, the city of New York with this article. The principal towns and villages on the island are Brooklyn, Jamaica, Sag-Harbour, Flatbush, Flushing, Setauket, and Huntingdon.

LONG ISLAND, or HAMOTE, an island on the coast of New Zealand, in Queen Charlotte's Sound, about forty miles long. It has much

wood and large flocks of sea and other fowl, are also seen about the cliffs. Nine miles south of Port Jackson.—Also an island about forty miles with current on the coast of Papua or New Guinea.

LONG ISLAND SOUND, a kind of inland sea, from three to twenty-five miles broad, and about 140 long, extending the whole length of the island, and dividing it from Connecticut. It communicates with the ocean at both ends.

LONGEVITY. Immediately after the creation, when the world was to be peopled by one man and one woman, the ordinary age was 900 and upwards. See ANTEDILUVIANS. Immediately after the flood, when there were three persons to people the world, their age was shortened, and none of those patriarchs, but Shem, arrived at 500. In the second century we find none that reached 240: in the third none but Terah that came to 200 years: the world, at least a part of it, by that time being so well peopled, that they had built cities, and were cantoned out into distant nations. By degrees, as the number of people increased, their longevity dwindled, till it came down to seventy or eighty years; and there it has continued to stand ever since the time of Moses.

That the common duration of man's life has been the same in all ages, since the above period, is plain both from sacred and profane history. Yet instances of lives greatly exceeding that period are not only to be found in the history of all ages and countries, but even in our own country and in the present age. Mr. Whitehurst, in his Enquiry into the Origin and Strata of the Earth, has given a list (since enlarged by Dr. Fothergill) of thirty-two persons, who died between 1635 and 1781, all of whom had lived above a century, most of them considerably longer, and one who was living in 1780 had attained the astonishing age of 175! Lord Bacon assures us, from the most incontestable evidence, that in A. D. 76, when a general taxation was made over the Roman empire, by Vespasian, there were found living in Italy, between the Appennines and the Po, no fewer than 124 persons aged 100 and upwards. Of these fifty-four were 100 years old, fifty-seven were 110, two 125, four 130, four 136, and three 140 years old each; besides nineteen others in Parma, Placentia, Faventia, Rimini, &c., of whom six were 110 years old, seven 120, one 125, two 130, one 131, one 132, and one 150. And, in our own age and country, Sir John Sinclair's Statistical Account affords numerous and authentic evidences, that longevity is far from being uncommon. In proof of this, we might, if room permitted, give quotations from above 400 of the 938 parochial accounts in that work; but we shall content ourselves with only one from that of Crossmichael in Galloway:—'Within these twenty years,' says the Rev. J. Johnstone, 'at least twelve persons have died in the lower parts of Galloway, from 100 to 115 years old. William Marshal, a tinker in this place, is now 118. He might pass for sixty. His faculties are unimpaired, and he walks through the country with ease.' From the various instances of longevity given by Mr. Whitehurst and others, we shall only select a few of the most remarkable.

Names.	Ages.	Places of birth or abode.	Living or dead about
Hippocrates	104	Isle of Coos	358 A. A. C.
Deinocritus	109	Abdera	361
Galen	140	Pergamus	271 A. D.
Marcus Aponius	150	Rimino	
Titus Fullonius	150	Bononia	
Mark Albuna	150	Ethiopia	
Lewis Cornaro	100	Venice	1566
Thomas Parre	152	Shropshire	1635
James Bowles	152	Killingworth	1656
Henry Jenkins	169	Yorkshire	1670
Robert Montgomery	126	Yorkshire	1670
James Sands	140	Staffordshire	
Countess of Desmond	140	Ireland	
Countess of Eccleston	143	Ireland	1691
Margaret Scott	125	Dalkeith	
R. Blakeney, esq.	114	Armagh	
Marquis of Winchester	106	Hampshire	
Katharine M'Kenzie	117	Fowlis, Ross-shire	
Colonel T. Winslow	146	Ireland	1766
John Mount	136	Scotland	1766
Francis Consist	150	Yorkshire	1768
Francis Bons	121	France	1769
C. J. Drakenberg	146	Norway	1770
Kenneth Munro of Inveran	100	Kiltearn, Ross-shire	1775
Margaret Patton	138	Lochwinnoch	
Mary Yates	128	Shropshire	1776
A. Goldsmith	140	France	1776
Countess of Loudoun	100	Loudoun	1779
M. Laurence	140	Orkney	
Janet Taylor	108	Fintray	1780
Louisa Truxo, a negress	175	Tucomea, South America	1780
Jane Reeves	103	Essex	1781
Evan Williams	145	Caermarthenshire	1782
John Wilson	116	Suffolk	1782
J. Brown, esq.	107	Fowlis Ross-shire	1782
Alexander Ewart	104	Dumfries-shire	1789
John Jacobs	121	Mount Jura	1790
Helen Gray	105	Fifeshire	1791
Matthew Tait	123	Ayrshire	1792
Donald M'Leod	104	Isle of Sky	1792
Thomas Garrick	108	Fifeshire	1792

LONGFORD, an inland county in the province of Leinster, and kingdom of Ireland, bounded on the north by the counties of Leitrim and Cavan: on the south and east by Westmeath county: and on the west by Roscommon. It extends about twenty-six miles in length, and measures about twenty-four in breadth. Its superficial contents are 134,152 acres, which are subdivided into twenty-three parishes, and six baronies, the latter called Longford, Granard, Ardagh, Moydoo, Rathcline, and Abbeyshruel. Longford is rather a level country, much intermixed with bog, the northern angle alone being occupied by hills, which are bleak and barren. In the townland of Lisardowling is a small hill or moat called the centre of Ireland.

The chief rivers are, the Shannon, which forms its western boundary, the Inny, the Camlin, and the Faller; the swellings of these, besides the inundations of Lough Gawnagh, lay great parts of the country occasionally under water, and considerably obstruct tillage. The articles of manufacture produced here are yarn, and good brown

linen; and the agricultural export consists chiefly of oats. The chief towns are Longford, Granard, Lawsborough, Johnstown, and Edgeworthstown, near which is the residence of that elegant and moral writer, Miss Edgeworth. Longford formed part of the ancient district of Annaly or Angalia, the country of the O'Ferrals, who were dispossessed by the English settlers, the Delamares, and Tuites.

LONGFORD, the chief or assizes town of the county of the same name in Ireland, is situated on the river Camlin, in the barony of Longford, at the distance of about seventy English miles from the city of Dublin. It is a market, post, and fair town, consisting of one principal street, with a market-house, new gaol, court house, infirmary, diocesan school, permanent barrack, a good inn, and brewery. The situation is flat, exposed, marshy, and unhealthy; the only elevated ground in the vicinity is the hill of Fenagh-fadd, which rises to a height of about 200 feet only. The trade of this little town, as well as the salubrity of its climate, would derive material

benefit, by a branch from hence to the canal at Killashee, only four miles distant. The family of Pakenham derive the title of earls from this place.

LONGING is a preternatural appetite in pregnant women, and in some sick persons when about to recover. It is called *pica*, from the bird of that name, which is said to be subject to the same disorder. It consists of a desire of unusual things to eat and drink, and in being soon tired of one and wanting another. It is called *malacia*, from *μαλακος*, weakness. Chlorotic girls, and men who labor under suppressed hemorrhoids, are very subject to this complaint, and are relieved by promoting the respective evacuations. In general, whether this disorder is observed in pregnant women, in persons recovering from an acute fever, or in those who labor under obstructions of the natural evacuations, this craving of the appetite should be moderately indulged.

LONGINUS (Dionysius), a celebrated Greek critic of the third century, by some said to have been born in Athens, by others in Syria. His father's name is unknown, but by his mother he was allied to the celebrated Plutarch. His youth was spent in travelling with his parents, which afforded him an opportunity of collecting knowledge, and of improving his taste. After his travels, he fixed his residence at Athens, and with the greatest assiduity applied to study. Here he published his Treatise on the Sublime; which raised his reputation to such a height, and gave the Athenians such an opinion of his judgment and taste, that every work was received or rejected by the public, according to his decisions

He seems to have staid in Athens a long time; here he taught the academic philosophy, and among others had the famous Porphyry for his pupil. But it was at length his fortune to be drawn from Athens, and to mix in more active scenes; to train up young princes to virtue and glory; to guide the busy passions of the great to noble objects; and at last to die in the cause of liberty. Zenobia, queen of the east, prevailed on him to take the education of her sons; and he soon gained a great share in her esteem. That princess was at war with Aurelian: and being defeated by him near Antioch, was compelled to shut herself up in Palmyra, her capital city. The emperor wrote her a letter, in which he ordered her to surrender; to which she returned an answer, drawn up by Longinus, which filled him with resentment. The emperor laid siege to the city; and the Palmyrians were at length obliged to surrender. The queen and Longinus endeavoured to fly into Persia; but were overtaken and made prisoners when on the point of crossing the Euphrates. The queen, intimidated, weakly laid the blame of vindicating the liberty of her country on its true author; and the brave Longinus, to the disgrace of the conqueror, was immediately executed. The writings of Longinus were numerous, some on philosophical, but the greater part on critical subjects. Dr. Pearce has collected the titles of twenty-five treatises, none of which have escaped the depredations of time and barbarians. The best edition of his works is that of Tollius, printed at Utrecht, in 1694, cum notis variorum. It has been translated into English by Mr. Smith.

LONGITUDE.

LONGITUDE, *n. s.* 2. *Fr. longitude*; *Lat.*

LONGITUDINAL, *adj.* *Longitudo*. Length; the greatest dimension; the earth's circumference measured from a given meridian; the distance of any part of the earth east or west of any other given place.

To conclude;
Of *longitudes*, what other way have we,
But to mark when and where the dark eclipses be?

Donne.

The ancients did determine the *longitude* of all rooms, which were longer than broad, by the double of their latitude.

Wotton.

Some of Magellanus's company were the first that did compass the world through all the degrees of *longitude*.

Abbot.

The *longitude* of a star is its distance from the first point of numeration towards the east, which first point, unto the ancients, was the vernal equinox.

Brown's Vulgar Errors.

His was the method of discovering the *longitude* by bomb-vessels.

Arbuthnot and Pope's Martin Scriblerius.

The variety of the alphabet was in mere *longitude* only, but the thousand parts of our bodies may be diversified by situation in all the dimensions of solid bodies; which multiplies all over and over again, and overwhelms the fancy in a new abyss of unfathomable number.

Bentley.

Longitudinal is opposed to transverse; these vesti-

culæ are distended, and their *longitudinal* diameters straightened, and so the length of the whole muscle shortened.

Cheque.

LONGITUDE, in geography and navigation, is the angle at the pole, included between the meridian of any place, and the first meridian; and it is generally measured on the equator; though, considered in itself, it may with equal propriety be measured on any parallel of latitude; but, when difference of latitude and difference of longitude are to be composed, it is expedient that they should be estimated on circles of equal radii, therefore in navigation longitude is measured on the equator. See **NAVIGATION**.

The method of finding the longitude is a problem of such importance and such difficulty, and has occupied so large a space in the application of science to the business of practical life, that an account of the circumstances which have contributed to bring its solution to the state in which we now have it, cannot fail to be in a high degree interesting. We shall therefore give a brief sketch of the various methods which have been proposed for discovering it, the principles on which they depend, with directions for putting in practice such of them as have been found useful, and illustrate the whole with appropriate examples.

HISTORY OF THE ATTEMPTS WHICH HAVE BEEN MADE TO DISCOVER THE LONGITUDE AT SEA.

No sooner had navigators ventured out of sight of land, than the importance of some method of finding the longitude as well as the latitude by observation began to be felt. In 1598 Philip III. of Spain offered a reward of 1000 crowns to any one who could give a solution adequate to the wants of seamen; and soon after the states general offered a reward of 10,000 florins. The British parliament passed an act in 1714, empowering certain commissioners to make such experiments as they might deem necessary to facilitate the solution of this problem, and assigned £2000 to defray any expenses that might attend the experiments: and further granting a reward to the person who might make any progress in the solution, proportionable to the degree of accuracy which might arise by the solution in practice; £10,000, £15,000, and £20,000, being the rewards offered, if the proposed solution should be capable of determining the longitude to a degree of a great circle, two-thirds of a degree, or half a degree respectively.

The improvements in nautical science which the preceding munificent rewards induced philosophers, mathematicians, and artists, to labor at accomplishing, having ultimately been so far successful, that the highest reward was adjudged to one individual; it was represented to parliament, in 1818, that the longitude could now by at least two separate methods be found at sea within the limits which had been previously specified, a new act was passed empowering the commissioners for the discovery of the longitude to propose from time to time to his majesty in council, to establish three scales of proportionate rewards to be paid to any one who shall by any principle not yet made public, ascertain the longitude within three new corresponding scales of limit and condition, those rewards not respectively exceeding £5000, £7500, and £10,000; and giving also to the board of longitude very liberal powers to reward any discovery tending to benefit navigation; and finally permitting the board to recompense any person who may propose or contrive any thing ingenious in itself and useful in science, and which may deserve encouragement, even though the results which it furnishes may not come within the limits of that exactness to which his majesty may be recommended, to adhere in adjudging the preceding rewards.

Encouraged by such offers, the talent which has been employed on this problem is not to be wondered at. In 1635 John Morin, professor of mathematics at Paris, proposed a method of solving it to cardinal Richelieu; and though, from the then imperfect state of the lunar tables, the commissioners employed to examine this method judged it insufficient, Cardinal Mazarin in 1645 procured a pension of 2000 livres for the author.

The many attempts that have been made at the solution of this problem may all be said to depend on the same principle, the determining the difference of time between two meridians; for this time is the same part of twenty four hours, that the angle included between those meridians is of four right angles. Hence one hour of difference

in time corresponds to a difference of 15° of longitude.

The time at the place of observation can generally be obtained with great ease and exactness, so that the chief difficulty in the solution of this problem lies in finding the time at the first meridian.

Gemma Frisius in 1530 seems first to have suggested the method of finding the longitude at sea by means of watches or time keepers, which machines he says were then but lately invented.

Such a machine being regulated, to Greenwich time, for example, would always show the time of day at Greenwich wherever it might be carried to, and the difference between this time and that at the place found by observation would give, as we have shown above, the longitude of the place from Greenwich.

The same method was soon after attempted by Metius, and some others, but the art of watch-making was at that time too imperfect to enable them to succeed. Dr. Hook and Mr. Huygens, about the year 1664, applied the pendulum spring to watches which were employed for the purpose of discovering the longitude at sea. Dr. Hooke's indeed, from his having quarrelled with the ministry, were never put on trial at sea, but many experiments were made with those constructed by Huygens. Major Holmes in particular, in a voyage from the coast of Guinea in 1665, predicted, by the aid of one of these watches, the longitude of the island of Fuego to a considerable degree of accuracy. Experience however soon convinced Huygens that unless some method could be found of correcting the irregularities caused in the going of these watches by the effects of heat and cold, they could be but of little practical use in finding the longitude.

A method of finding the longitude was proposed by Whiston and Ditton, which, though perfectly useless for determining the longitude at sea, has been successfully practised for finding it on land. In the improved method of putting it in practice, rockets are fired perpendicularly at some intermediate place between those whose difference of longitude it is proposed to determine, and the time at each place, when the rocket is seen to explode in the air, being noted, the difference of those times gives the element required. The relative situations with respect to longitude, of some of the observatories on the continent, have been determined by this method, and very recently a series of experiments of this kind have been successfully concluded for determining the difference of longitude between the observatories of Greenwich and Paris.

In 1714 Henry Sully, an Englishman, printed a small tract at Vienna, upon the subject of watch-making. Having afterwards removed to Paris, he applied himself to the improvement of time-keepers for the discovery of the longitude. He taught the famous Julian de Roy; and this gentleman, with his son, and M. Berthoud, are the only persons, who, since the days of Sully, have turned their thoughts this way. But, though experiments were made at sea with some of their watches, they were not able to accomplish any thing of importance with regard to the principal point. SEE CLOCK-MAKING.

The first who succeeded in any considerable degree was Mr. John Harrison; who, in 1726 produced a watch which went so exactly, that for ten years together it did not err above one-second in a month. In 1736 it was tried in a voyage to Lisbon and back again, on board one of his majesty's ships; during which it corrected an error of a degree and a half in the computation of the ship's reckoning. In consequence of this he received public encouragement to go on; and, by the year 1761, had finished three time-keepers, each of them more accurate than the former. See HARRISON.

The last turned out so much to his satisfaction that he now applied to the commissioners of longitude for leave to make an experiment with his watch in a voyage to the West Indies. Permission being granted his son Mr. William Harrison to set out in his majesty's ship the *Deptford* for Jamaica in the month of November 1761, this trial was attended with all imaginable success. The longitude of the island, as determined by the time-keeper, differed from that found by astronomical observations only one minute and a quarter of the equator; the longitude of places seen by the way being also determined with great exactness. On the ship's return to England, it was found to have erred no more during the whole voyage than $1^{\circ} 54\frac{1}{2}''$ in time, little more than twenty-eight miles in distance; which being within the limits prescribed by the act, the inventor claimed the £20,000 offered by government. Objections, however, were started. Doubts were pretended about the real longitude of Jamaica, as well as the manner in which the time had been found both there and at Portsmouth. It was alleged also that although the time-keeper happened to be right at Jamaica, and after its return to England, this was by no means a proof that it had always been so in the intermediate times; in consequence of which allegations another trial was appointed in a voyage to Barbadoes.

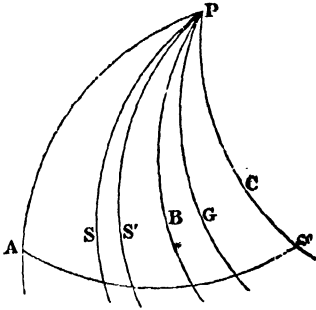
Precautions were now taken to obviate as many of these objections as possible. The commissioners sent out proper persons to make astronomical observations at that island; which, when compared with others in England, would ascertain beyond a doubt its true situation. In 1764, then, Mr. Harrison junior set sail for Barbadoes; and the result of the experiment was, that the difference of longitude betwixt Portsmouth and Barbadoes, was shown by the time-keeper to be $3h. 55m. 3s$; and by astronomical observations to be $3h. 54m. 20s$; the error being now only $43''$ of time, or $10' 45''$ of longitude. In consequence of this and the former trials Mr. Harrison received one-half of the reward promised, upon making a discovery of the principles upon which his time-keepers were constructed. He was likewise promised the other half of the reward as soon as time-keepers should be constructed by other artists, which should answer the purpose as well as those of Mr. Harrison himself. At this time he delivered up all his time keepers, the last of which was sent to Greenwich to be tried by Mr. Nevil Maskelyne the astronomer royal. On trial, however, it was found to go with much less regularity than had been expected; but Mr. Harrison attributed this to his having made some

experiments with it which he had not time to finish when he was ordered to deliver up the watch. Soon after this an agreement was made by the commissioners with Mr. Kendall to construct a watch upon Mr. Harrison's principles; and this upon trial was found to answer the purpose even better than any that Harrison himself had constructed. This watch was sent out with captain Cook in 1772; and during all the time of his voyage round the world in 1772, 1773, 1774, and 1775, never erred quite $14\frac{1}{2}''$ per day; in consequence of which the house of commons, in 1774, ordered the other £10,000 to be paid to Mr. Harrison. Mr. Harrison had also at different times received other sums of money as encouragement to continue his endeavours, from the Board of Longitude, the East India Company, and from many private individuals, Mr. Arnold, Mr. Mudye, Mr. Ernshaw, and many others have since made many good watches for the same purpose. In 1821 government directed the astronomer royal to receive on trial whatever chronometers might be sent to him for that purpose, and agreed to purchase at a liberal price, every year the three best, provided their going was within certain assigned limits of exactness. In consequence there are always now at the observatory a great number of chronometers sent by the makers on trial, many of which perform most admirably; and indeed it may be said that the great price of chronometers is now the only obstacle to their introduction into general use.

Several astronomical methods have been proposed for finding the time at the first meridian; and any celestial phenomenon, whose times of happening can be predicted, may theoretically be made subservient to that purpose. But, in actual practice, the phenomenon must be such as can without extraordinary difficulty be observed with sufficient nicety; and those depending on the motions of the moon, and the rotation of the satellites of Jupiter round their primary, have been found to be the only ones of any practical value.

The principle on which all astronomical methods of finding the longitude rest is, that the difference between the time of day at meridian, and the time of day at the place of observation, is the longitude of the meridian of that place in time. Now apparent time signifies, or is measured by the angle at the pole included between the meridian of any place and the meridian on which the sun is at that instant. Mean time is the angle included between the meridian of the place, and the meridian on which the mean place of the sun might at the instant be conceived to be. Siderial time is the angle included between the meridian of any place, and the meridian on which the first point of Aries is at the instant.

Let A in the annexed figure represent the first point of Aries; S and S', the true and mean places of the sun; G Greenwich, and B, C, any other two places, P being the pole. Then GPA, GPS, and GPS', are respectively the siderial, apparent, and mean time at Greenwich; BPA, BPS, and BPS', the siderial, apparent, and mean time at B; CPA, CPS, and CPS', the siderial, apparent and mean time at C. Now $GPA - BPA$, or $GPA - BPS$, or $GPA - BPS'$, = BPG the longitude of B, or



of any place on the meridian PB, westerly. And CPA—GPA, or CPS—GPS, or CPS'—GPS,—GPC, the longitude of C, or of any place on the meridian PC, and easterly. Hence it appears that the difference between the sidereal time at the first meridian and the sidereal time at any other meridian is the longitude of that meridian; and that the difference between the mean times, or between the apparent times at the first meridian and that of any other place is the longitude of that other meridian; easterly when the time at the first meridian is behind, and westerly when before the time at the meridian whose longitude it is proposed to find.

If eclipses of the moon happened more frequently they would afford one of the easiest methods of finding the longitude that can be conceived. For the time at the place of observation being noted when the eclipse begins or ends, and compared with the Greenwich time of the corresponding phenomenon as given in the Nautical Almanac, the difference of the times gives the required longitude. It must, however, be observed on this method, that the beginning or end of a lunar eclipse can seldom be determined by observation, to nearer than two or three minutes of time, owing to the gradual shading off of the shadow; and therefore in any single observation the longitude cannot be depended on to nearer than half or three-quarters of a degree.

The eclipses of Jupiter's satellites have been of great use in settling within reasonable limits of exactness the longitudes of places on land; but at sea it has been found impracticable to manage telescopes of sufficient power to note the times at which the eclipses happen. Mr. Irvin invented what he called a marine chair, in which he conceived that even on ship-board a telescope adequate to making such observations might be used with success; but Dr. Maskelyne, who tried it in a voyage to Barbadoes, found that he could derive no benefit from the use of it.

The first and second satellites of Jupiter, as they circulate most rapidly round their primary, are best adapted to the purpose of finding the longitude, but the tables even of their motions are not sufficiently accurate to satisfy the wants of the present state of science. From the observations of the late colonel Beaufoy it appears that the predicted and actual times of an eclipse of the first satellite sometimes differ more than two minutes, though they generally differ less than twenty seconds of time; and with respect to the second satellite the difference in some cases

has been found to amount to nearly three minutes. The method of finding the longitude, from the eclipses of Jupiter's satellites, may therefore be characterised as one which, though easy of application, cannot be depended on as affording results of any very great degree of exactness. Of course the utility of the method will be increased by every improvement in the tables of the motions of the satellites, and every advance that is made in perfecting the construction of telescopes.

The time of the moon's transit over the meridian has also been made subservient to finding the longitude of that meridian. It appears to have been first mentioned by Purchas in his account of Hall's discovery of Greenland; and soon after (in 1635) it was clearly explained in Carpenter's Geography. It is mentioned by Dr. Maskelyne, in his instructions relative to the transit of Venus in 1769; by Bernoulli, and by the abbé Toaldo, in a pamphlet published in 1784; and lastly by Mr. Pigott, who, without knowing that the method had been thought of before, recommended it very strongly to the public, in a paper published in the Philosophical Transactions.

On land, the time of the moon's transit may be determined with great precision with the aid of a transit instrument fixed in the plane of the meridian, and this method is always practised in regular observations. It may also be determined with tolerable accuracy by observing equal altitudes of the moon with a sextant and an artificial horizon, making allowance in the time of the transit, deduced from equal altitudes, for the change of declination in the interval between the observations.

Eclipses of the sun, and the analogous phenomena of occultations of stars by the moon, have also been applied to the finding the time at the first meridian. Mr. F. Baily, in a recent volume of the Memoirs of the Astronomical Society of London, has brought forward, in a new and greatly improved form, the method of finding the longitude from the moon's meridian transit. We merely notice it here as connected with one department of the history of this important problem; and shall recur to it again in a subsequent part of this article.

We have purposely omitted till now, in this historical sketch, to refer to by far the most ingenious and useful method that has ever been proposed for solving this important problem, the method of deducing the longitude from the moon's observed distance from the sun or a star, with the altitudes of both objects. This is commonly called a lunar observation, and from the improvements that have been made in the lunar tables, and in instruments for observing the distance and altitudes, it has been brought to a degree of perfection which fifty years ago could not have been anticipated.

The method consists simply in deducing from the altitudes of the objects, and their distance, with their parallaxes, and the refractions corresponding to their altitudes, what their distance would have been if the observer had been at the centre of the earth; and this distance, compared with those computed and given for

Greenwich time in the *Nautical Almanac*, enables the computer to find the instant at Greenwich when his observation was made; and this time, compared with the time at the place at which he is, gives the required longitude.

John Werner, of Nuremberg, appears to have been the first who proposed this method of finding the longitude in his annotations on the first book of Ptolemy's *Geography*, printed in 1514. It was recommended by Oronce Fine of Briancon, and again by Gemma Frisius in 1545; and the celebrated Kepler was fully persuaded of its utility. Almost every writer on astronomy down to the time of Flamsteed adverted to it; but even in his day, setting aside the imperfections of the instruments of observation, such was the state of the lunar tables, that he says, 'we find the best tables extant cring sometimes twelve minutes or more from the moon's apparent place, which would cause a fault of half an hour, or $7^{\circ} 30'$ in the longitude, deduced by comparing her place in the heavens with that given by the tables.' This method, therefore, though it appeared to be the only one likely to be applied successfully at sea, was at that time abandoned as impracticable.

But, when Dr. Maskelyne succeeded to the situation of astronomer royal in 1765, such advances had been made in astronomical science, that under his auspices this method of finding the longitude was again brought forward, and after devoting a great portion of his long and valuable life to bring the method to perfection, and to introduce it into practice at sea, he had the satisfaction of seeing his meritorious exertions crowned with almost complete success.

One of the great obstacles to its introduction into general practice was the difficulty in making the necessary calculations from the tables and formulæ which the labors of astronomers had supplied; but this formidable objection was completely obviated by the publication of the *Nautical Almanac*, which, on Dr. Maskelyne's suggestion, was undertaken by the board of longitude in 1766, and it has ever since been continued annually, and is generally published three or four years in advance for the convenience of mariners going on long voyages. Similar publications have since been brought out in several countries in Europe, under the patronage of their respective governments. The French *Connaissance de Temps*, the *Jar Book* of Vienna, and the *Coimbra Ephemeris*, are all similar, and valuable compendiums; and two separate and large editions of the *English Nautical Almanac* are annually published in America.

But before mariners in general could be materially benefited, by all these efforts for their advantage, it was requisite that they should be furnished with such instruments for observing as they could use with readiness, and depend upon with confidence; and with simple as well as appropriate rules for making the necessary computations after their observations were completed.

The artists of this country answered well to the call which this consideration made upon their talents, and devised such improvements in the construction and graduation of quadrants,

sexants, and circles, for nautical observations, that little appears left to be desired on the subject; and, in all the useful problems of nautical astronomy, the methods of calculation have been so simplified that it is not easy to conceive for what situation, connected with the navigation of a ship, the person is fitted who is incapable of applying them.

PRACTICAL DIRECTIONS FOR FINDING THE LONGITUDE.

1. *By a chronometer.*—The error of the chronometer must be found for some known meridian, and its rate or its daily gain, or loss. Call this error e , the rate r , and the number of days from the time that the chronometer had the error e , till it is used for finding the longitude, d , and call the longitude of the place for which the error e was found, l ; then the true mean time T at the meridian of Greenwich may be found from t , the time shown by the chronometer, by the following formula: $T = t + e + r \cdot d$, e being negative when the watch is fast, r negative when the watch is gaining, and l negative in east longitude. And this time, being compared with the mean time at the place as deduced from observation, will give the longitude of the place; west, if the Greenwich time is before, but east if the Greenwich time is behind the time at the place of observation.

Example. If at sea, on October 11th, I find by observation that the mean time is 4h. 2m. 4cs. when a chronometer (which on September 14th was 30m. 2s. fast for mean time at Constantinople, and gaining 4s. per day) showed 7h. 2m. 12s., required the longitude here $d = 27$, $r = -4s.$, $e = -30m. 2s.$, and $l = 12^{\circ} 35'$, $E = -50m. 20s.$. Hence $T = 7h. 2m. 12s. - 30m. 2s. - 1m. 40s. = 50m. 12s. = 6h. 40m. 18s.$; and $6h. 40m. 18s. - 4h. 2m. 40s. = 2h. 37m. 38s. = 39^{\circ} 24' 30''$, the required longitude west.

2. *By the eclipses of Jupiter's satellites.*—Let the Greenwich time of the expected immersion or emersion be looked for in the *Nautical Almanac*, and subtract the supposed longitude of the place of observation from this time, if west, but add it if east, and the result will give the time about which the phenomenon expected ought to be looked for. Let the observer then be settled to his telescope a few minutes before this time, and wait attentively for the instant in which the satellite either enters the shadow, or emerges from it; note the precise instant in mean time at the place when the immersion or emersion is observed; and the difference between that time, and the Greenwich time of the observation as given in the *Almanac*, will be the longitude of the place of observation in time.

Or if at any time afterwards the time at which the eclipse was observed at Greenwich should happen to be known, the difference between that time and the time of the place of observation will give the longitude more exactly than it can be expected to be obtained from a comparison with the computed times in the *Nautical Almanac*. The eclipses, which in favorable weather may be observed at Greenwich, are marked in the *Nautical Almanac* with an asterisk.

Example.—On April 11th I observed by the Nautical Almanac, that the first satellite of Jupiter would emerge from his shadow at 11h. 28m. 4s. Greenwich mean time; I conceived my longitude to be about 9° west, and therefore at about 10h. 45m. I sat down to the telescope, and waited till 10h. 53m. 1s., when I saw the satellite emerge, I therefore concluded that my longitude was 11h. 28m. 4s. — 10h. 53m. 1s. = 35h. 3s. = 8° 45' 34" west.

3. *By the moon's transit over the meridian.*—If the meridian of a given place, say that of Greenwich, produced to the heavens, were to pass through the sun, the moon, and a fixed star, in the next instant the sun by its motion in right ascension will separate itself from the star, and the moon by her greater motion in right ascension will separate herself still further from the star; or, in other words, at any time after these objects were on the meridian, the star will be the most west of the meridian, the moon least, and the sun in an intermediate position.

The meridian after quitting these bodies will again pass through the star after describing 360° in 23h. 56m. 4.09s., through the sun, after describing 360° 59' 8.3", in 24h., and through the moon in an interval greater than 24h., depending on the daily increase of the moon's right ascension. A spectator on a different meridian would note similar effects; but less in degree as his distance from the first meridian is less. He will note an increase of the sun's right ascension or a separation of the sun from the fixed star, but less than 59m. 8.3s., an increase in the moon's right ascension, but less than its increase between two successive transits; and consequently an excess of the increase of the moon's right ascension above that of the sun's, but less than the excess in the interval between two successive transits of the moon over the first meridian.

Hence, if the increase of the sun or moon's right ascension were known in the interval between two successive transits (and from the Nautical Almanac they can readily be obtained), an observer who could by actual observation determine their right ascensions at the time at which they passed his meridian, might by simple proportion find his longitude, either by comparing the sun and star, the moon and star, or the moon and sun. But, on account of the slow motion of the sun, the first of these methods is of no use in practice; we shall therefore consider only the two latter.

Let A, a , be the respective increases of the right ascensions of the sun and moon in 24h.; then the interval between two successive transits of the moon over any given meridian is 24h.

$\left\{ 1 + \frac{A-a}{24} + \left(\frac{A-a}{24}\right)^2 + \left(\frac{A-a}{24}\right)^3 \&c., \right.$
and the retardation in 24h. is $A - a + \frac{(A-a)^2}{24} + \frac{(A-a)^3}{24^2} + \&c.,$ and the increase

of A due to her retardation is $\frac{A}{24}(A-a) + \frac{(A-a)^2}{24^2} + \frac{(A-a)^3}{24^3} \&c.,$ and consequently $E,$
the increase of her right ascension between two

successive transits, $A + A \left\{ \frac{A-a}{24} + \left(\frac{A-a}{24}\right)^2 + \left(\frac{A-a}{24}\right)^3 + \&c. \right\}$

Hence, if e be the observed increase of the moon's right ascension between her passing the first meridian and that of the place of observation, then the longitude of that place is $24 \frac{e}{A}$.

$\left\{ 1 + \frac{A-a}{24} + \left(\frac{A-a}{24}\right)^2 + \left(\frac{A-a}{24}\right)^3 \&c. \right\}$

In the case of the sun $E = A - a + \frac{(A-a)^2}{24} + \frac{(A-a)^3}{24^2} \&c.;$ and $e' = e - \epsilon$, ϵ

representing the star's acceleration proportional to the time corresponding to the difference of meridians. Hence the longitude = $24 \frac{e - \epsilon}{A - a}$

$\div \left\{ 1 + \frac{A-a}{24} + \left(\frac{A-a}{24}\right)^2 + \left(\frac{A-a}{24}\right)^3 \&c. \right\}$

The moon's right ascension is given in the Nautical Almanac for every 12h.; we may therefore employ $\frac{A-a}{2}$, the difference of the increases

of right ascension in 12h., instead of $A - a$, the difference for 24h., using accordingly in the formulæ 12h. instead of 24h.

Though the above divisors in the formulæ for the longitude are infinite series, it will be sufficiently accurate in practice to take the sum of three of their terms.

Example.—If, on April 8th 1800, the right ascension be observed when on the meridian of Greenwich to be 12h. 36m. 26.6s., and on a meridian to the west of Greenwich 12h. 47m. 56.7s. required the longitude of that meridian.

Here 12h. 36m. 26.6s. $\sqrt{12h. 47m. 56.7s. = 11m. 30.1s. = c}$, and by the Nautical Almanac we have $A = 52m. 6s.$, and $a = 3m. 39.3s.$, whence $A - a = 48m. 26.7s.$; and time of moon's describing $A - a = 50m. 7.8s.$, for which time the proportional increase of 52m. 6s. is 1m. 48.8s.; hence $E = 52m. 6s. + 1m. 48.8s. = 53m. 54.8s.$; and consequently 53m. 54.8s. : 11m. 30.1s. :: 24h. : 5 · 1200h. = 5h. 7m. 12.25s., the required longitude in time.

Mr. Francis Baily, a gentleman who stands at the head of astronomical science in this country, has, in part I. vol. 2 of the Memoirs of the Astronomical Society of London, greatly improved the method of finding the longitude, by the method now under consideration. This method consists in observing with a transit instrument the difference of right ascension between the border of the moon and certain fixed stars previously agreed upon; restricting the observations to such stars as differ very little from the moon in declination. 'It is evident,' he observes, 'that this method is quite independent of the errors of the lunar tables, except as far as the horary motion of the moon in right ascension is concerned, and which in the present case may be depended on with sufficient confidence: that it does not involve any question respecting the compression of the earth: that a knowledge of the correct position of the star is not at all

required; and finally that an error, even of several seconds, in the state of the clock, is of no consequence. Consequently a vast mass of unsatisfactory computation is avoided.

Since the publication of Mr. Baily's memoir, lists of stars proper to observe with the moon for this purpose have been published in Schumacher's *Astronomia Nachrichten*, and Mr. Baily himself has also published some in this country, the last of which was for the first six months of 1823. These stars have been called moon culminating stars, and several distinguished astronomers have determined the longitude of their observatories by means of them; and lieutenant Forster, the astronomer employed by government in captain Parry's second voyage, applied the method successfully in determining the longitude of Port Bowen.

Let the difference between the time of the transit of the moon's limb and of the fixed star previously agreed on, at the observatory situated most westerly, be denoted by t , and at the observatory situated most easterly by τ . These values will be positive when the transit of the star precedes that of the moon; otherwise they will be negative. Then $t - \tau$ will denote the increase in the right ascension of the moon's limb, in the interval between the observations.

Let us denote, for the apparent time of the moon's culmination at the western observatory, her true radius as seen from the earth by r ; her true declination by d ; and let those quantities at the time of her culmination at the eastern observatory be respectively denoted by ρ and δ . Then $(t - \tau) \pm \frac{1}{15} \left(\frac{r}{\cos. d} - \frac{\rho}{\cos. \delta} \right) = \Delta$

will be the true difference of right ascension of the moon's centre for the two instants of observation; the upper sign being used when the western border of the moon is observed; and the lower sign when the eastern border is observed. But when the difference of meridians is not great we may use the formula in the simple form $t - \tau = \Delta$. The semi-diameter and declination

of the moon above alluded to are such as they are supposed to be if seen from the centre of the earth.

In all cases the longitude required may be supposed to be approximately known; to say within a minute of time. Call this approximate longitude l , and the true longitude λ . Let the apparent time (at the meridian for which the ephemeris employed is computed) of the culmination at the western observatory be denoted by c , and the moon's true right ascension at that time by a ; and let the corresponding time and right ascension at the culmination observed at the eastern observatory be denoted respectively by x and χ ; then $a - x : c - \chi :: \Delta : \lambda$: the angle in time described by the western meridian in the interval of the observations; that is equal to the difference of longitude added to Δ . Whence

we have $\lambda = \left(\frac{c - x}{a - x} - 1 \right) \Delta$; or expressing

$\frac{c - x}{a - x}$ in time instead of one, we have $\lambda = \left(15 \cdot \frac{c - x}{a - x} - 1 \right) \Delta$. Or to reduce the time

$c - x$, which is apparent, into sidereal time, let $\frac{s}{24h}$ represent the value of a solar day in sidereal

time, and then $\lambda = \left(\frac{s}{24h} \cdot 15 \cdot \frac{c - x}{a - x} - 1 \right) \Delta$

$= \left(\frac{s}{5760} \cdot \frac{c - x}{a - x} - 1 \right) \Delta$; or resuming the value of Δ we have finally $\lambda =$

$\left[t - \tau \pm \frac{1}{15} \left(\frac{r}{\cos. d} - \frac{\rho}{\cos. \delta} \right) \right] \times \left[\frac{s}{5760} \cdot \frac{c - x}{a - x} - 1 \right]$; on which formula it may

be remarked that when more stars than one have been observed on any given night, $t - \tau$ must be taken equal to the mean of all the comparisons made at the same culmination of the moon.

Example.—M. Nicolai at Manheim, and M. Strucer at Dorpat, observed the culmination of the first border of the moon on the 3d of March, 1822; the observations are as under:—

Stars.	Manheim. $t =$	Dorpat. $\tau =$	Diff. $t - \tau =$
1822. 309 Mayer, + 13m. 18.30s.	+ 10m. 17.56s.	3m. 0.71s.	
March 3d, 82 Gemin, + 8 9.42	+ 5 8.25	3 0.88	
μ' Cancri, — 9 41.11	— 12 41.89	3 0.78	

Mean = 3 0.80 = 180.8s.

Manheim.	Dorpat.
$\gamma = 15m. 44.4s.$	$\gamma = 15m. 44.8s.$
$d = 23^{\circ} 51' 42''$	$\delta = 24^{\circ} 2' 18''$

And consequently $\frac{1}{15} \left(\frac{\gamma}{\cos. d} - \frac{\delta}{\cos. \delta} \right) = -$

0.123s. whence $\Delta = + 180.8s. - 0.123s. = 180.677$.

To find the values of a and x we must compute by means of second differences the true right ascension of the moon, for the apparent times denoted by c and x ; and the difference between them will be the true motion of the moon in the interval $c - x$. The following are the values deduced from the *Con. des Temps*:—

Manheim.	Dorpat.	Diff.
1822 $c =$	$x =$	$c - x =$
March 3d, 8h. 26m.	7h. — 10m. 1h. — 16m.	

The true semi-diameter and declination of the moon at Manheim and Dorpat, at the above hours, Paris time, will be:

$$\begin{array}{ll} c = 8h. 26m. & a = 116^{\circ} 49' 24'' \\ x = 7 \ 10 & x = 116 \ 4 \ 7.6 \\ c. - x = \overline{1 \ 16} & a - x = 45 \ 16.8 \end{array}$$

The length of a solar day, or the value of s was 86623.4s.; hence we have,

$$\lambda = 180.677s. \left(\frac{86623.4}{5760} \times 1.67845 - 1 \right) = 44.$$

12m. 59.45s., the difference of longitude between Manheim and Dorpat.

By occultations.—The observations requisite in this method are of the simplest possible character, and, through the skill of modern astronomers, the computations have been greatly simplified. All that is requisite in making the observation is an ordinary telescope, with a watch, or chronometer, and an instrument to find its error for time at the place of observation. Mr. Galbraith of Edinburgh, in his truly valuable *Mathematical and Astronomical Tables*, has given the following rules for making the computations, being, with a few alterations, the same as those given by Dr. Inman in his *Navigation*.

From the time at the place of observation, and the estimated longitude, find the estimated Greenwich time; and for that time taken from the *Nautical Almanac*, the true right ascension of the sun and moon, the moon's true declination, with its change for 10s., for the purpose of repeating the observations if necessary; and the moon's semi-diameter, as well as her horizontal parallax, corrected for the figure of the earth. Take also the moon's true right ascension for 3h. after the first estimated time; and take from the *Nautical Almanac*, or other tables, the apparent right ascension and declination of the star, and correct the latitude for the figure of the earth, and find in the usual way the star's meridian distance, which is equal, apparent time + sun's R. A. — *'s R. A.

Make four columns and number them (1) (2) (3) (4), and under each write the proportional logarithm of the reduced horizontal parallax. Under (1) and (2) put the secant of the reduced latitude; under (3) the cosecant of the same; under (1) the cosecant of the star's meridian distance (a), and take the sum of the numbers now under (1). Below that sum put the constant logarithm 1.17609 and the cosine of the star's declination; at the same time put under (2) the cosecant, and under (3) the secant of the same; the sum of the three logarithms under (1) will be the proportional logarithm of one first, or the parallax in R. A. in time nearly, one half of which (b) is to be subtracted from (a) giving ($a-b$) the corrected hour angle.

Under (2) put the secant of the hour angle thus corrected. The sum of the logarithms under (3) will be the proportional logarithm of the first part of the parallax in declination, and that under (2) the second part. The first part must be applied with such a sign as to diminish the star's distance from the elevated pole: the second must be applied with the same sign as the first when the hour angle and polar distance are of different affections, otherwise with a contrary sign; and the result will be the true declination of the observed point of the moon's

limbs. Take the difference between this true declination of the observed point and the declination of the moon's centre, found from the *Nautical Almanac*; under which put the moon's semi-diameter properly corrected, and take the sum and difference. Add together the proportional logarithms of this sum and difference, and to half the sum add the cosine of the mean between the moon's true declination and that just found, and the sum will be the proportional logarithm of the moon's semi-diameter in right ascension nearly.

Under (4) put 1.17609, the first sum under (1) and the cosine of the declination of the observed point, and the sum will be the proportional logarithm of the exact parallax of R. A. in time, which being added to the star's R. A. when west of the meridian, but subtracted if east, will give the true R. A. of the point observed. To the true R. A. thus obtained add the moon's semi-diameter in R. A. or subtract it according as the re-appearance or disappearance of the star has been observed, and the result will be the true right ascension of the moon's centre deduced from the observation. If this differs considerably from the R. A. taken from the *Nautical Almanac*, alter the moon's declination by as many seconds as will make a corresponding variation in the first R. A. such as the *Nautical Almanac* would give for the same alteration in the declination. Repeat the operation till this is the case, and the last R. A. will be that required.

Under this put the moon's (1) R. A. taken from the *Nautical Almanac* for the Greenwich time, and then the moon's R. A. three hours afterwards. Take the difference between the second and each of the others, and from the proportional logarithm of the less difference, subtract the proportional logarithm of the greater, and the remainder will be the proportional logarithm of a portion of time which must be added to the Greenwich time when the first right ascension is greater than the second; or otherwise subtracted, and the result will be the Greenwich apparent time; the difference between which and the apparent time at the place of observation, will be the longitude of that place in time.

Example.—On March 3d, 1823, at Bahia, in latitude $12^{\circ} 57' 17''$ S., longitude by estimation $38^{\circ} 30'$ W., the re-appearance of Antares from the dark limb of the moon, was observed at 15h. 30m. 0.3s.; required the true longitude?

Bahia, March 3d	15h. 30m.
Longitude in time	2 \ 34

Greenwich estimated time	18 \ 4
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To this time we have the sun's R. A. 22h. 56m. 58.64s., * R. A. 16h. 18m. 35.8s., *'s declination $26^{\circ} 1' 50.1''$ S., ☽'s R. A. $244^{\circ} 27' 29.75''$, declination $25^{\circ} 55' 15.6''$ S., variation for 10s. 0.63'' S., semidiameter $14' 50''$ reduced parallax $54' 26''$; ☽'s R. A. 3h. after $246^{\circ} 6' 16.82''$; reduced latitude of Bahia $12^{\circ} 52' 17''$ S. Hence *'s meridian distance = apparent time + ☉'s R. A. — *'s R. A. = 22h. 8m. 23.12s., which taken from 24h. leaves 1h. 51m. 36.88s. = $27^{\circ} 54' 13.2'' = a$.

Calculation (1)				(2)	(3)	(4)
*'s hor. p	0° 54' 26"	P. L. 0.51941		P. L. 0.51941	P. L. 0.51941	C. L. 1.17609
Red. lat.	12 52 17	sect. 0.01104	*'s Declin. S.	0.01104 cosec.	0.65216	
* mer. dist.	27 54 13' 2"	cost. 0.32976	26° 1' 50.1'	0.35768 sect.	0.04645	
		0.86021	cosect.			
						86021
*'s declin.	26 1 50.1	cosine 9.95345	(2) 10' 53.7" S.			1.21802
		Const. log. 1.17609				
Arc (1), Oh. 1m. 50.6s.		P. L. 1.98975	26° 12' 43.8"			
Half	0 0 55.3	(b)				
Diff.	1 50 41.6	(a-b) = 27° 40' 24"		0.05276		
			(3) 0 20 37.5	N. 0.94089	P. L.	
)'s true declin.		25 52 6.3				9.94515
)'s reduced declin.		25 55 15.6	(4) Oh. 1m. 50s. 4	P. L. 1.99045		
	Diff.	3 9.3	*'s R. A. 16 18 35.8			
	)'s semid.	14 50.0				
	1.00028 P. L.	17 59.3	T. R. A. 16 16 45.4			244° 11' 21"
	1.18790 P. L.	11 40.7			(5)	16 7
	2.18813 semi.		T. R. A.)'s centre			244 27 28
	1.09409 half		1st. R. A.			244 27 30
)'s true declin. 25° 52' 6.3"			2nd R. A.			246 6 16
)'s red. declin. 25 55 15.6		3.73239	P. L. 1st. diff.			0 0 2
Mean	25 53 41.0	cos. 9.95405	0.26066	P. L. 2nd diff.		1 38 46
(5) 16' 6.7"	P. L. 1.04814	3.47173	P. L.			0 0 3.7
			Estimated time			18 4 0
			Greenwich time			18 3 56.3
			Bahia time			15 30 0.3
			Longitude time			2 23 56.0
			In degrees W.			38° 29' 0"

Lieutenant Drinkwater of the royal navy has lately communicated to the astronomical society of London another method of making the preliminary computations for deducing the longitude from an occultation. In his method the sun's right ascension, the moon's declination, horizontal parallax, and semidiameter are taken as in the above method from the Nautical Almanac, for the approximate Greenwich time; the star's meridian distance found, and the latitude and parallax corrected for the earth's ellipticity. Then calling the reduced horizontal parallax P , the star's meridian distance M , its polar distance p , and the latitude l ; he computes arc A , from $\tan. A = \cos. M. \cot. l$; arc B from $B = p + A$; C the principal effect of parallax in polar distance, from $C = P \sin l \sin B$. sect A (—when it is less than p , otherwise +, unless when M exceeds six hours, when it is always —); D the parallax in right ascension, from $D = P. \cos. l. \sin. M. \operatorname{cosect} p$, (—when the star is east of the meridian, otherwise +); and E , the final correction of declination from $E = \frac{D^2 \sin 2 p}{\sin 1''}$ always—.

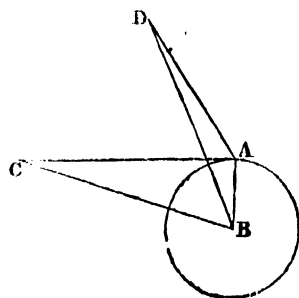
And, having thus found the declination of the point of occultation, the difference between it and that of the moon's centre is known; and, from this difference, the moon's semidiameter, and the declinations of both objects, the difference between the right ascension of the point of occultation, and that of the moon's centre is found exactly in the same way as in the method given above. Hence the right ascension of the moon's centre is known, and thence, by interpolating in the Nautical Almanac, the Greenwich time of occultation is found. The methods above given for finding the longitude astronomically, require fixed instruments, and particular conjunctions for putting them in practice: we have now to explain the method of finding the longitude by means of the moon's distance from the sun or a star, a method in which neither the observer nor his instrument is required of necessity to be steady, but may be practised under almost any conceivable circumstances of difficulty, and in the absence of clouds may be resorted to whenever the moon is above the horizon, except for two or three days before and after her change.

We have already remarked that the Nautical Almanac was formerly intended to facilitate the finding of the longitude by this particular method; and that in its pages are found the distance of the moon from the sun and certain stars, for every three hours of Greenwich time. It is evident, therefore, that if by any means whatever, instrumental or computative, an observer could determine at any instant the distance of the moon from the sun, or any of the stars for which the Greenwich times, corresponding to her distances, are on the day of observation given in the Nautical Almanac; he may, by referring to that publication, find either at once, or by simple proportion, the precise instant of Greenwich time; and he might thus make the moon serve as the pointer of a Greenwich clock whose face was contained in the pages of the Nautical Almanac. But the distances given in the Nautical Almanac are such as the objects would appear to have if the observer were at the centre of the world; and, as all observations must of necessity be made on the surface, we must determine by computation what they would have been if observed at the centre, before any comparison can be instituted between them and those given in the Nautical Almanac, for the purpose of determining the Greenwich time. This computation is what is known in nautical astronomy by the problem of clearing the lunar distance.

All celestial objects are elevated by refraction above the place in which they would appear if refraction had no existence, and those at which the radius of the earth subtends any sensible angle appear lower, on that account, when observed at the surface, than they would do if they could be viewed from the centre of the earth; this latter deviation of the apparent place of a celestial object from its true place is called the parallax of the object, and varies, as does also the refraction, with the altitude of the object, both vanishing when the object is in the zenith. The moon's parallax varies from a little less than 54' to a little more than 61', according to her distance from the earth. The sun's parallax fluctuates a small fraction of a second above or below 8.75", and may, for the purposes of computation in this problem, be taken equal to 9". The parallaxes of the planets vary according to their distances: that of Venus when nearest the earth is about 30", and when most remote is about 5"; Mars's varies from 21" to about 5"; Jupiter's from 2" to about 1"; and Saturn's from 1' to about 8', and that of the fixed stars is altogether insensible. The moon's, which is by far the largest, as well as the most variable, is given with her semidiameter in the Nautical Almanac for every twelve hours of Greenwich time.

The parallax of an object, when it appears in the horizon, is called its horizontal parallax, and it is that which is meant in the above statement of the parallax of the leading planets in the solar system. When a celestial object is above the horizon, the angle which the radius of the earth on which an observation may be made, subtends at the object, is called the parallax of the object

in altitude. In the annexed figure, let C be the object in the horizon, D its place at the altitude D A C, and B the centre of the earth, then C is the horizontal parallax, and D the parallax in altitude.



Now, as with the same planet C B and B D are equal, we have $C B : B A :: B D : B A$; but $C B : B A :: \text{rad.} : \sin. C$, and $B D : B A :: \sin. B A D$, or $\cos. C A D : \sin. D$; hence $\text{rad.} : \sin. C :: \cos. C A D : \sin. D$; or as cosine of the apparent altitude to the sine of the parallax in altitude may be computed when the horizontal parallax is obtained from the Nautical Almanac, or any similar publication.

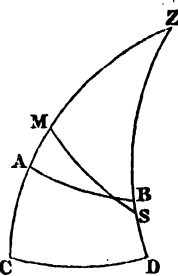
The difference between the refraction and parallax of a celestial object is called its correction of altitude; and, the parallax of the moon at any altitude being greater than the refraction at the same altitude, her correction of altitude is additive to her apparent altitude to obtain her true altitude. But, with respect to the sun or any planet, the parallax at any altitude is less than the corresponding refraction, and, therefore, for the sun or a planet, the correction of altitude is subtractive from the apparent to obtain the true altitude. And, as the fixed stars have no sensible parallax, the refraction is the sole correction of their altitudes, and subtractive. From what has just been said, we may infer generally that the true place of the moon is above her apparent place, and that the true place of any other celestial object is below its apparent place.

Now the distance of the moon from the sun or a star, being measured with a sextant circle, or other appropriate instrument, the apparent altitudes of the objects must either be taken at the same instant, or determined by calculation, and the problem then occurs to determine from the apparent altitudes and distance (the parallaxes of the objects and the refractions corresponding to the altitudes being also known), what their true distances would be if viewed from the centre of the earth.

In the first place we may remark that the true and apparent places are always in the same vertical circle; and, therefore, that the two spherical triangles formed one by the apparent distance of the objects and their apparent distances from the zenith, and the other by the true distance of the objects and their true distances from the zenith, have the angle included between the vertical circles on which the objects are observed common to both triangles.

Let Z, in the annexed figure, be the zenith, A the apparent place of the moon; M its true place; B the apparent place of the sun or a star; and S its true place; and let C D be the arc of the

horizon, included between the vertical circles ZC and ZD; then AC is the moon's apparent altitude, BD the sun's or star's apparent altitude, MC the moon's, and SD the sun's or star's true altitude, AM the moon's, and BS the sun's or star's correction of altitude, or the difference between the parallax and refraction; AZ is the moon's apparent, and MZ her true zenith distance; and BZ, SZ, are respectively the true and apparent zenith distance of the sun or star.



The computation of MS from the given data is therefore exceedingly simple; for we have only with the apparent zenith distance AZ and BZ (the complements of AC and BD) and the apparent distance AB, to find the angle Z; and then, in the spherical triangle MZS, we have given the angle Z, and the true zenith distances MZ and SZ, to find the true distance MS.

Much time and talent have been applied to

simplify the computations of this very simple problem. The time occupied in taking proportional parts for seconds, in the simple and obvious solution above pointed out, it has been thought might be well spared; and the risk of error in a problem, where seconds of one are important, ought by all practicable means to be diminished. It would be needless to attempt a sketch of many of the expedients which have been devised for this purpose. We shall content ourselves with giving the investigation of two or three of the most practical, and refer to works professedly treating on navigation and nautical astronomy, those who may be desirous of farther information on the subject.

The first which we shall give is that of the chevalier Borda, which requires no tables except the common one of logarithmic sines and cosines.

Let D = the true distance MS (see the above figure); d = the opposite distance AB, A, a , ($90^\circ - ZM$, $90^\circ - ZS$), the true altitudes; and H, h , ($90^\circ - ZA$, $90^\circ - ZB$), the apparent altitudes.

Then in the triangle SZM, $\cos. Z = \frac{\cos. D - \sin. A \cdot \sin. a}{\cos. A \cdot \cos. a}$; and in the triangle AZB, $\cos. Z = \frac{\cos. D - \sin. H \cdot \sin. h}{\cos. H \cdot \cos. h}$; and by equating these two expressions we have $\cos. D = (\cos. d - \sin. H \cdot \sin. h) \frac{\cos. A \cdot \cos. a}{\cos. H \cdot \cos. h} + \sin. A \cdot \sin. a - (\cos. d + \cos. H + h - \cos. H \cdot \cos. h) \frac{\cos. A \cdot \cos. a}{\cos. H \cdot \cos. h}$. But the last term = $\cos. A + a$; subtract both sides of the equation from 1; then, since $1 - \cos. D = 1 \sin. \frac{2D}{2}$, and $1 + \cos. A + a = 2 \cos. \frac{2A + a}{2}$; we have, after dividing by 2, and putting $F = \frac{\cos. A}{\cos. H} \frac{\cos. a}{\cos. h} \sin. \frac{2D}{2} = \cos. \frac{2A + a}{2} - \cos. \frac{H + h + d}{2} \cdot \cos. \frac{H + h \oslash d}{2} \times F = \cos. \frac{2A + a}{2} \left(1 - \frac{\cos. \frac{H + h + d}{2} \cos. \frac{H + h \oslash d}{2}}{\cos. \frac{2A + a}{2}} \right)$. And if we take $\cos. \frac{H + h + d}{2} \cdot \cos. \frac{H + h \oslash d}{2} = \cos. \frac{2A + a}{2} \cdot \cos. \theta$, we shall have $\sin. \frac{2D}{2} = \cos. \frac{2A + a}{2} \cdot \cos. \theta$, or $\sin. \frac{D}{2} = \cos. \frac{A + a}{2} \cdot \cos. \theta$.

The method which J. de Mendoza Rios selected, and which he compiled his extensive and most valuable collection of tables to facilitate, depends on the same principles as the preceding.

Equating as above, the two expressions for $\cos. Z$, we have $\frac{\cos. D - \sin. A \cdot \sin. a}{\cos. A \cdot \cos. a} = \frac{\cos. d - \sin. H \cdot \sin. h}{\cos. H \cdot \cos. h}$; adding to each, we have $\frac{\cos. A \cdot \cos. a}{\cos. A \cdot \cos. a} + \frac{\cos. D - \sin. A \cdot \sin. a}{\cos. A \cdot \cos. a} = \frac{\cos. H \cdot \cos. h}{\cos. H \cdot \cos. h} + \frac{\cos. d - \sin. H \cdot \sin. h}{\cos. H \cdot \cos. h}$ or, $\frac{\cos. D + \cos. A + a}{\cos. A \cdot \cos. a} = \frac{\cos. d - \cos. H + h}{\cos. H \cdot \cos. h}$; whence, $\cos. D = (\cos. d - \cos. H + h) \frac{\cos. A \cdot \cos. a}{\cos. H \cdot \cos. h} - \cos. A + a$. Put $\frac{\cos. A \cdot \cos. a}{\cos. H \cdot \cos. h} = 2 \cos. N$; or let $\cos. N = \frac{\cos. A \cdot \cos. a \cdot \text{sect. } H \cdot \text{sect. } h}{2 \text{ rad.}}$; then we have $\cos. D = (\cos. d - \cos. H + h) 2 \cos. N - \cos. A + a = 2 \cos. d \cdot \cos. N - 2 \cos. H + h \cdot \cos. N - \cos. A + a$ or $= \cos. d + N + \cos. d \oslash N + \cos. (H + h \oslash N) - \cos. A + a$ or

$1 - \cos. D = 1 + \cos. A + a - \cos. d + N - \cos. d \oslash N - \cos. (H + h + N) - \cos. (H + h \oslash N)$, or, vers. $D = s \cos. A + a - \cos. d + N - \cos. d \oslash N - \cos. (H + h + N) - \cos. (H + h \oslash N)$. Or adding 4, to reduce the cosines to versed sines, and deducting 4 from the same, vers. $D = s \cos. A + a + \text{vers. } d + N + \text{vers. } d \oslash N + \text{vers. } (H + h + N) + \text{vers. } (H + h \oslash N) - 4$, an expression which requires only the addition of five versed sines.

The simplification in this solution depends chiefly on having the auxiliary arc N computed and tabulated, which has been done in a very convenient form.—See Rio's Nautical Tables, Inman's Tables, and Riddle's Navigation and Nautical Astronomy.

The true distance being computed by the methods pointed out above, or by any other of the many formulæ that have been contrived for the purpose, seek in the Nautical Almanac for the distances of the moon from the object whose distance from her has been computed, between which that distance falls,—call the first distance a , and the second, or that three hours after, b , and the time of the first distance t ; then the time corresponding to the true distance D will be

$$t + \frac{3^a \oslash D}{a \oslash b}. \text{ The numerical result from the}$$

second part of this theorem is greatly facilitated by the use of proportional logarithms. See LOGARITHMS in this work.

After this account of the various methods by which the time at the first meridian may be found, we shall add an account of the chief methods which may be employed for finding the time at the place of observation.

With a transit instrument, which moves in the plane of the meridian, we have simply to notice the time at which a known star comes to the meridian, and the difference between that time and the star's right ascension is the error of the chronometer for sidereal time. Call the time by the clock at which the star passes the meridian T , the star's right ascension r , and the sun's right ascension R , and the equation of time e , then $T \oslash r$, $T \oslash r \oslash R$, and $T \oslash (r \oslash R \pm e)$ are the errors of the clock for sidereal, apparent, and mean time respectively. This observation being repeated on several stars, the error of the clock and its rate may be ascertained with great precision.

$$\sin. \frac{2H}{2} = \text{sect. } l. \cos e \oslash. p \sin \frac{a + l + p}{2}$$

time; the upper sign being used when the object is westward of the meridian, or when the altitude is decreasing, and the lower sign when the object is eastward of the meridian, or when the altitude is increasing. Further, we have $r \pm H - R =$ the apparent time, and this corrected for the equation of time, gives mean time when the altitude was observed.

ON THE METHOD OF ADJUSTING THE SEXTANT.

The adjustments of which this instrument admits are, to make the index and horizon mirrors perpendicular to the plane of the instrument, and the telescope parallel to the same plane; and it is also necessary, previous to making any deductions from observations made with the instrument, to ascertain its index error, that is the

If the time of the sun's passing the meridian be noted, the error of the clock, either for mean or apparent time, will be known.

But it is in few places, whose longitude it is required to determine, that the observer has time to make the delicate adjustments which a transit instrument requires before it can be applied with any advantage in determining the times. Recourse must therefore in general be had to other methods. One of the simplest and best is to take equal altitudes of the same star, east and west of the meridian, noting the times by the clock when each altitude is observed, and half the sum of those times will be the time by the clock when the star is on the meridian; hence the error of the clock is known; and consequently the true time may be known by it, at any given instant, by allowing for the known error, on the time which it shows.

The time may also be found from equal altitudes of the sun observed east and west of the meridian; but, the declination of the sun being variable, a correction on that account, called the equation of equal altitudes, must be applied to the middle time, to obtain the time at which the sun was on the meridian. This correction depends both on the sun's declination, its change in the interval, and the latitude of the place of observation, whereas the two preceding methods are independent of them all. But considerable accuracy in the result will be obtained, without any very exact knowledge either of the latitude or declination, if the change of declination in the interval be exactly known.

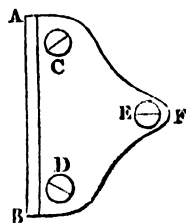
If the latitude of the place has been correctly ascertained, the time may be deduced from the altitude of any known celestial object. Let $l =$ the latitude, a the altitude of the object, r its right ascension, R the sun's right ascension, and H the object's meridian distance, then

$$\sin. \left(\frac{a + l + p}{2} - a \right); \text{ and } r \pm H = \text{sidereal}$$

point on the limb at which the zero division of the index stands when the mirrors are parallel.

The index mirror is generally fixed by the maker firmly in its proper position, and in some instruments there are no direct means of adjusting it if it should happen to get out of order.

A B in the annexed figure represents a section of the mirror, and A F B the plane, by which it is attached to the index by means of the three screws C, D, and E. The mirror is known to be in adjustment when the image of the limb of the instrument, seen in it by reflection, is in the same plane with the limb itself; the index



being placed any where on the arch. If the reflected image of the limb appears to incline downward from the plane of the limb, the plane of the limb inclines backward; and, if the instrument has no other means of adjustment, the screws C, D, and E, must be slackened, and a piece of paper, or other thin compressible matter, put below the plane AFB at F, and the screws so tightened that the reflected image of the limb and the limb itself may appear as one continuous plane. If the reflected image appears too high, then a slip of paper must be put below AB, and the screws tightened so that the adjustment may be perfect.

In some instruments the screw E is not a fastening but an adjusting screw, pressing on the plane of the index when screwed in, and consequently giving the plane of the mirror an inclination forward; and the converse when it is slackened. In other instruments the adjustment is effected by a screw acting on a spring, against which the top part of the mirror rests.

The best method of examining the adjustment of the horizon mirror is (having previously adjusted the index reflector) to look at the sun, and, moving the index slowly backwards and forwards, to observe whether the sun, as seen directly, is exactly covered by his reflected image, in passing. If it does the instrument is adjusted. See **SEXTANT**.

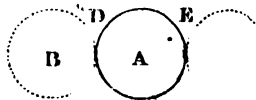
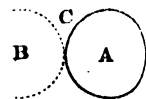
In the annexed figure let A represent the sun as seen directly, and let B, C, D, be the image of the sun as passing A, from the motion of the index. If the instrument were in exact adjustment, C would completely cover A. If it does not, the screw, which gives vertical motion to the glass, with reference to the plane of the instrument, must be turned till C and A exactly coincide.

This screw is differently placed, according to the fancy of the maker. For example: AB representing the plane of the mirror; CDEF the apparatus by which it is attached to the plane of the instrument; then the vertical adjustment is made by means of a screw placed as at G, H, I, or K indifferently.

To make the telescope parallel to the plane of the instrument, turn its eye piece till the wires in the focus of it are parallel to the plane of the instrument; then bring the sun and moon, when at a great distance from each other, in apparent contact on the wire nearest the instrument, and immediately bring them on the opposite wire, on which, if they also appear in apparent contact, the line of collimation, or the axis of the telescope, is properly adjusted. If the images should appear to separate or overlap, slacken one of the sunk screws in the collar into which

the telescope is screwed, and lighten the other till the contact of the images is perfect on both wires, when the adjustment will be perfect.

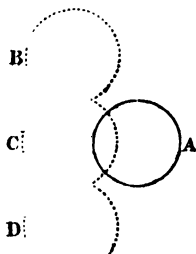
It remains now only to ascertain the index error of the instrument, or the position of the zero of the index, when the index and horizon mirrors are parallel. This may be done in various ways: 1st, Move forward the index till the direct and reflected images of the distant horizon appear as one line; then, if the zero of the index stands on the left of the zero on the limb, what it does so stand to the left is the index error, subtractive. If on the contrary, the index error is additive. 2dly, Make the direct and reflected images of the sun coincide, and the position of the zero will, as above, show the index error. The same may also be effected by making the direct and reflected images of the moon or a bright star coincide. 3dly, Move the index forward, till the reflected image of the sun, as B, exactly touch the limb of the sun, A, as at C; then the difference between the position of the zero of the index and the sun's diameter, as given in the Nautical Almanac, will be the index error;—additive when the diameter is the greater, but otherwise subtractive. 4thly, Bring the limbs of the sun and his reflected image in contact alternately right and left, as at D and E in the annexed



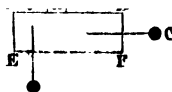
figure, and half the difference of the readings will be the index error, when the zero of the index stands on different sides of zero on the limb; otherwise half the sum of the readings will be the index error; and additive when the greater reading is on the right of the zero on the limb, but subtractive when the greater reading is on the left.

This last is by far the best and most independent method of ascertaining the index error, and it besides affords the observer an excellent opportunity of judging of his skill in estimating a contact; for the distance of the two points at which the index stands, when the reflected image of the sun is in contact with his limb, is double the sun's diameter; hence, by comparing this difference with the known diameter of the sun, an observer may readily discover whether there is any peculiarity or defect in his method of estimating a contact, and he may accordingly endeavour to correct any faulty habit of observing, which such an experiment may show him to have acquired.

The instrument being adjusted, the next object is to take the requisite observations for obtaining the data necessary in the solution of the problem. These are generally the distance of the moon from the sun or a star, with the altitudes of both objects at the same instant. The altitudes are taken in the usual way, either with a quadrant or sextant; the most important element, the distance, requires to be taken with the utmost nicety. Look in the Nautical Almanac for the distance in a rough way between the moon and the required object



DH



at the time of observation, and set the index any way not far from that distance; then look through the telescope at the dimmer object, and turn round the instrument till its plane coincides with one passing through the eye, and the two objects whose distance it is required to measure, and the reflected image of the brighter object will readily be found. Then turn down such screens as may appear necessary, and bring the limbs in contact in the centre of the field of view of the telescope, and the observation will be completed; and the altitudes with the time of observation, as noted by an assistant observer, being read and entered, the observations may be repeated, till half a dozen or more sets are obtained; and the mean of the whole may be taken as a single observation.

If the dimmer object is to the right of the brighter one, there are many persons who find it extremely difficult to hold the instrument in the manner in which it must be then held, if the telescope be pointed as above directed to the dimmer object. Let then the contact be nearly

completed, and screw down the telescope towards the plane of the instrument, turn down the proper screens before the horizon glass, and remove them before the index glass; then look toward the brighter object, and turn the instrument round till the image of the dimmer one is seen, and complete the contact; which, in this position of the instrument, can be done with much greater ease.

It may be observed, however, that this method cannot be satisfactorily practised if the dimmer object is very dim; as the moon during the day at three days old; or as α Arietis near the moon at full. But it is of great importance that whatever difficulties may attend taking this delicate observation should not be increased by mechanical difficulties attending any particular manner of holding the instrument, when these difficulties may be avoided.

For practical examples on the methods of finding the longitudes by observation at sea, see the article NAVIGATION.

LONGLAND, or **LANGLANDE** (Robert), a secular priest, fellow of Oriel College, Oxford, in the fourteenth century, supposed to have been the author of *The Vision of Pierce Plowman*, and *Pierce Plowman's Crede*. He is said to have been a disciple of Wycliffe, his poems being satires on the vice and luxury of the Romish clergy. He hazarded such remarkable prophecies of an impending reformation, in the church, that Warton declares he should have supposed them to have been foisted into the copies, since the suppression of monasteries in England, if he had not seen them in MSS. as old as the beginning of the fifteenth century.

LONGOMONTANUS (Christian), a learned astronomer, born in a village of Denmark in 1562. He was the son of a ploughman, and was obliged to suffer during his studies many hardships, dividing his time, like the philosopher Cleanthes, between the cultivation of the earth and the lessons he received from the minister of the place. At last, when he was fifteen, he left his family, and went to Wiburg, where there was a college, in which he spent eleven years; and, though he was obliged to earn a livelihood, he studied with such ardor that he learned the mathematics in great perfection. He afterwards went to Copenhagen; where the professors of that university recommended him to the celebrated Tycho Brahe. He lived eight years with that famous astronomer, and was of great service to him in his observations and calculations. At length, being extremely desirous of obtaining a professor's chair in Denmark, Tycho Brahe consented to part with him, and furnished him with money for the expense of his journey. He obtained a professorship of mathematics in the university of Copenhagen in 1605; and discharged the duty of it worthily till his death, in 1647. He wrote many learned works: the chief of which is his *Astronomia Danica*; 1640, folio. He also endeavoured to square the circle, and thought he had made that discovery: but Dr. John Pell, an English mathematician, proved that he was mistaken in his calculations.

LONGUEIL (Christopher de), a learned writer, born at Malines in 1490. He was much in favor with several princes. He was employed by pope Leo X. to write against Luther. He wrote also Commentaries on Pliny's book of Plants; and Observations on the Civil Law. He died in 1522.

LONGUERUE (Louis de), a learned French divine, born at Charleville in 1652. He wrote, 1. A Latin dissertation on Tatian; 2. *La Description Historique de la France*; 3. *Annales Arsacidarum*; 4. A Discourse on Transubstantiation; and 5. Remarks on the Life of Cardinal Wolsey.

LONGUS, a Greek sophist, author of a book entitled *Ποσειδωνία*, or *Pastorals*; and a romance containing the loves of Daphnis and Chloe. Huetius, bishop of Avranches, speaks very highly of this work, but censures some passages as obscene. As no ancient author mentions Longus, the time when he lived cannot be ascertained. J. Craggs, esq., secretary of state, translated his work into English.

LONICERA, honeysuckle, in botany, a genus of the monogynia order, and pentandria class of plants: cor. monopetalous and irregular: berry polyspermous, bilocular, and inferior.

L. alpeigena, the upright red-berried honeysuckle, rises with a shrubby, short, thick, upright stem, branching strongly and erectly four or five feet high; largish, spear-shaped, leaves, in pairs, opposite; and from the sides of the branches many red flowers by twos on long foot-stalks, each succeeded by two red berries, joined together at their base: it flowers in August, and the berries ripen in autumn.

L. cærulea, the blue-berried upright honeysuckle, rises with a shrubby upright stem, branching moderately three or four feet high, with many white flowers proceeding from the sides of the branches; appearing in May, and succeeded by blue berries joined together at their base.

L. caprifolium, the Italian honeysuckle, rises with shrubby declinated stalks, sending out long

slender trailing branches, terminated by verticillate or whorled bunches of close-sitting flowers, very fragrant; and white, red, and yellow, colors.

L. periclymenum, the common climbing honeysuckle, has two principal varieties, viz. the English wild honeysuckle, or woodbine of our woods and hedges; and the Dutch or German honeysuckle. The former rises with shrubby, weak, very long, slender stalks, and branches trailing on the ground, or climbing round a support; all terminated by oval imbricated heads, furnishing smallish flowers of white or red colors, and appearing from June or July till autumn. The latter rises with a shrubby declinated stalk, and long trailing purplish branches, terminated by oval imbricated heads, furnishing large beautiful red flowers of a fragrant odor, appearing in June and July.

L. sempervirens, the evergreen trumpet-flowered honeysuckle, rises with a shrubby declinated stalk, sending out long slender trailing branches, terminated by naked verticillate spikes, of long, unreflexed, deep scarlet, flowers, very beautiful, but of little fragrance.

L. xylostemum, the fly honeysuckle, rises with a strong shrubby stem, branching erect to the height of seven or eight feet; with erect white flowers, proceeding from the sides of the branches; each succeeded by large double red berries, joined together at their base. The flowers appear in June, and the berries ripen in September. The easiest method of propagating all these plants is by layers and cuttings. In both cases they readily emit roots, and form plants in one year fit for transplantation. Some sorts are also propagated by suckers and seed.

IONS LE SAUVIER, a large town of France, the capital of the department of the Jura. It is agreeably situated on the river Solvan; and has salt springs which ebb and flow, and which have given rise to salt works of considerable extent in the neighbourhood. Here is also a silver mine. Population 7000. Sixty-two miles south-east of Dijon, and 269 south-east of Paris.

LONTAR PULO ISLE, an island in the Indian Ocean, separated by a narrow strait from the peninsula of Malacca. Its inhabitants derive their subsistence from the sea, and appear wholly ignorant of agriculture: the rice they use is procured from the Malays in exchange for fish. Long. 99° 0' E., lat. 70° 30' N.

LOO, *n. s.* From the French palace of Loo, probably. A game at cards.

A secret indignation, that all those affections of the mind should be thus viciely thrown away upon a hand at loo.

Addison.

In the rights of loo.

Pope.

LOOBY, *n. s.* } Welsh *llabe*.—Junius. Or
Loobily, *adv.* } see **LOW**. A stupid, clumsy fellow.

The plot of the farce was a grammar school, the master setting his boys their lessons, and a loobily country fellow putting in for a part among the scholars.

L'Estrange.

The vices trace

From the father's scoundrel race.

Who could give the looby such airs?

Were they masons, were they butchers?

Swift.

LOOCHOO, **LEWCHEW**, **LIQUEO**, or **LIEO**, **KIOU ISLANDS**, are a group of islands in the Eastern Ocean, to the south of Japan, and about 400 or 500 miles east of China. They consist, according to the accounts of Mr. M'Leod and captain Hall, of thirty-six islands, of which the one called the Great Loochoo is of considerable dimensions, being about fifty miles long, and from twelve to fifteen broad. Its existence was scarcely known to Europeans till it was visited by captain Maxwell and Hall, in their return with lord Amherst from the embassy to China. The part visited by the ships is called Napa-kiang or Napafoo, and is only five miles from Kin-tching the capital and residence of the king. Toward the northern extremity of the island is one of the finest harbours in the world, somewhat similar but far superior, to port Mahon. It was surveyed by captain Hall, and named by him port Melville. Captain Maxwell used every means that prudence would allow to obtain an interview with the king, but this could not be granted, as he did not come in any official character. The king, however, wrote a letter to the prince regent in the Chinese character, which was unfortunately lost when the *Alceste* was wrecked. I was written in a tone of great humility; hoping that the attentions which had been shown to the ships—'the great ship and her little child,'—would be satisfactory to the king of the English.

The whole island exhibited a gentle ascent from the sea, on which 'the grounds were disposed more like the finest country-seats in England than those of an island so remote from the civilised world.' They anchored in front of a town. The climate and soil are among the happiest on the globe. The sea breezes, blowing continually over it, preserve it from the extremes of heat and cold; while its configuration supplies it with rivers and streamlets of excellent water. The fruits and vegetables are consequently of the most exquisite kind: and those of distinct regions are found in a flourishing state. The orange and the lime, the banyan of India, and the Norwegian fir, all thrive here: but the chief object of cultivation is rice. They have also a very nourishing species of sweet potatoe: our ships left them some English ones. The animal creation is of diminutive size, their bullocks seldom weighing more than 350lbs. though plump and well conditioned, and the beef excellent; their goats and pigs are also diminutive, but the poultry large and excellent. The bull is used in agriculture. Few wild animals are seen. The whole coast is surrounded with coral reefs, but abounds in good harbours.

The inhabitants present, however, the most interesting feature of contemplation. They are a small race, the average height of the men not exceeding five feet two inches: but, though small, they are sturdy, well-built, and athletic. They are as fair as the southern Europeans, and have no trace either of Indian or Chinese features.

Captain Hall tells us that numerous parties came off from the shore, and that the deportment of all was modest, polite, timid, and respectful. They had the address however to amuse their visitors a whole fortnight, parrying with

considerable ingenuity every proposal that was made to go on shore, and setting aside with great adroitness every allusion to that subject; giving them at the same time every thing they could possibly want in the way of provisions, and even anticipating their wishes. At length, however, a greater number of boats than usual were observed coming off in a kind of procession, and it was soon discovered that a great man was in one of them. He appeared to be about sixty, and had a cheerfulness of expression and a liveliness of manner remarkable for a man of that age; his manners were graceful and elegant, and from the first moment he seemed to be quite at his ease; every thing about him indicated good breeding, and a familiarity with good society. He examined every part of the *Alceste* with the greatest attention, and seemed to be highly entertained with what he saw. Still, however, there was a strong jealousy exhibited of any attempt to land.

The departure of the *Lyra*, however, to examine the coast, produced the desired effect; the chiefs hastened on board the *Alceste* to enquire what was become of the little ship. Captain Maxwell told them that they had trifled with him so long, and refused to let him land his casks and stores with such obstinacy, that he found it necessary to look out for some more favorable place at which to refit. On hearing this they entreated that he would not think of moving from Napa-kiang; adding that he should have store-rooms on shore for whatever he desired; and that he and his officers might land where they pleased, and walk to the top of the hill without being guarded. In short they now assigned for their immediate use an oblong enclosure, sixty yards by forty, surrounded by a wall twelve feet high. (Of this prison (for such it might be considered) they kept undivided possession during the remainder of their stay, which was about a month.

Into the interior of their town, however, the English were never admitted, and even their walks were limited to a certain space. When any attempt was made to pass these bounds, the sentinels interposed by a polite request, and by representing the reproach which would fall upon themselves if the orders of the court were transgressed. Some overtures were made for an audience with the king; but this was declined, on the ground that no embassy or letters were brought from the kind of England. When captain Maxwell toasted the king of Loochoo, they appeared gratified, and in return gave the king of England, whom they appeared to consider as at least his equal. They appeared to live with each other in a very social manner, holding frequent pic-nic parties in the fields; the dinner being carried about in little japanned boxes, with sliding drawers, fastened to the end of a bamboo. A repast to which the English were invited consisted of hard boiled eggs, colored and sliced, fish dried in butter, sliced pork smoked, sliced pig's liver; then tea, which, being new, tasted like an infusion of hay. A dish consisting of a mass of coarse, soft, black sugar, wrapped up in unbaked dough, and powdered over with rice flour, dyed yellow, was the only unpalatable one; the intervals were filled up with sackee, pipes and tobac-

co; and every thing passed off with the greatest good humor. The English saw also specimens of their dancing, which might rather be called hopping, as they jump about on one foot, keeping the other up, clapping their hands, and making a number of extravagant motions; at the same time singing a tune.

Not a single instance of theft occurred during the whole stay of the ships: one striking peculiarity, which may perhaps in part account for this, consists in their being apparently quite strangers to the use of fire-arms, so that the musquetry and shot of the English were objects of great wonder and awe. They appear to have been shocked, however, to see them shooting the birds, but merely requested that they would desist, saying, that they were glad to see them flying about their houses, and offering at the same time a larger supply of fowls. They appeared also to have no money.

Among three or four persons who constantly attended them there was an individual of the name of Madera, whose character is drawn with great ability by captain Hall.

'Two of the natives,' he says, 'have been studying English with great assiduity and with considerable success. One is called Madera, the other Anya. They carry note books, in imitation of Mr. Clifford, in which they record in their own characters every word they learn. They are both keen fellows, and are always among the strangers. From the respect occasionally paid to them it is suspected that their rank is higher than they give out, and that their object in pretending to be people of ordinary rank is to obtain a more free intercourse with all classes on board the ships. Madera, by his liveliness and propriety of manners, has made himself a great favorite; he adopts our customs with a sort of intuitive readiness, sits down to table, uses a knife and fork, converses and walks with us; in short, does every thing that we do, quite as a matter of course, without any apparent effort or study. He is further recommended to us by the free way in which he communicates every thing relating to his country; so that as he advances in English, and we in Loo-choo, he may be the means of giving us much information. As an instance of his progress in English, it may be mentioned that one day he came on board the *Lyra*, and said, 'The Ta-yin speak me, you go ship, John come shore;' by which we understood that captain Maxwell had sent him on board the brig for the interpreter. This was about three weeks after our arrival.'

We cannot resist the temptation of adding this further extract. 'Madera has made great improvement in English, and his character is altogether more developed. He is quite at his ease in our company, and seems to take the most extraordinary interest in every thing belonging to us; but his ardent desire to inform himself on all subjects sometimes distresses him a good deal; he observes the facility with which we do some things, and his enterprising mind suggests to him the possibility of his imitating us; but, when he is made sensible of the number of steps by which alone the knowledge he admires is to be attained, his despair is strongly marked. He

sometimes asks us to read English aloud to him to which he always listens with the deepest attention. One day, on shore, he saw me with a book in my hand: he begged me to sit down under a tree and read: Jeeroo was the only chief present, but there were several of the peasants in attendance upon him; they all lay down on the grass, and listened with an attention and interest which are natural enough: every one expressed himself pleased and satisfied except Madera, whose anxiety was to read in the same manner himself. From the earnest way in which he enquired into every subject, we were sometimes inclined to think that he must have been directed by the government to inform himself on these topics; and certainly a fitter person could not have been selected; for he adapted himself so readily to all ranks, that he became at once a favorite, and every person took pleasure in obliging him.

Jeeroo is esteemed in another way; he is uniformly good humored and obliging, and not without curiosity; but he is not clever, and has none of the fire and enthusiasm of Madera. We all think kindly of Jeeroo, and shake him cordially by the hand when we meet him; but Madera is admired and respected, as well as esteemed, and his society is courted for his own sake.

Madera is about twenty-eight years of age, of a slender figure, and very active; his upper teeth project in front over the lower ones, giving his face a remarkable, but not a disagreeable expression. He is always cheerful, and often lively and playful, but his good sense prevents his ever going beyond the line of strict propriety. When required by etiquette to be grave, no one is so immoveably serious as Madera, and, when mirth rules the hour, he is the gayest of the gay: such indeed is his taste on these occasions, that he not only catches the outward tone of his company, but really appears to think and feel as they do. His enterprising spirit and versatility of talent have led him to engage in a number of pursuits; his success, however, is the most remarkable in his acquisition of English. About a month after our arrival, he was asked what had become of his companion Anya; he replied, 'Anya, him mother sick, he go him mother house;' and when asked if he would return, he said, 'Two, three day time, him mother no sick, he come ship.' With all these endowments and attainments he is unaffectedly modest, and never seems aware of his being superior to the rest of his countrymen. We were a long time in doubt what was his real rank; for at first he kept himself back, so that he was well known to the midshipmen before the officers were at all acquainted with him; he gradually came forward, and, though he always wore the dress of the ordinary respectable natives, his manners evidently belonged to a higher rank, but he never associated with the chiefs, and disclaimed having any pretensions to an equality with them. Notwithstanding all this, there were occasional circumstances, which, by showing his authority, almost betrayed his secret. One morning a difficulty arose about some supplies which the chiefs had engaged to procure, but which they

had neglected to send: as soon as Madera was told of the circumstance, he went to captain Maxwell, and undertook to arrange it to his satisfaction, at the same time begging that if any difficulty occurred in future, he might be applied to. Whatever may be Madera's rank in his own society, it is highly curious to discover, in a country so circumstanced, the same politeness, self-denial, and gracefulness of behaviour which the experience of civilised nations has pointed out as constituting the most pleasing and advantageous form of intercourse.

The great interest which Madera took in the English, and the curiosity he always expressed about our customs at home, suggested the idea of taking him with us to England, where he would have been an interesting specimen of a people so little known; and he also might have carried back knowledge of the greatest use to his country. When it was proposed to him, he paused for some minutes, and then, shaking his head, said, 'I go Injeree,—father, mother, child, wife, house, all cry I not go; no, no, all cry I go.' This interesting individual they afterward found to be a chief of considerable rank. A few days before they sailed the prince Loo-choo, about fifty years old, and heir to the throne, paid a visit to the *Alceste*, and invited the officers to an entertainment on shore. The bidding a last farewell to this interesting and amiable people was an affecting event.

Sunday, 27th of October.—At day-break we unmoored, and the natives, on seeing us take up one of our anchors, thought we were going to get under weigh immediately, and give them the slip, which was not at all intended. This alarm, however, brought the chiefs off in a great hurry, not in a body in their usual formal way, but one by one, in separate canoes. Old Jeema called on board the *Lyra* on his way to the frigate; he was a good deal agitated, and the tears came into his eyes when I put a ring on his finger. He gave me in return his knife.

The other chiefs called alongside on their way to the frigate, but went on when I told them that I was just going to the *Alceste* myself. In the mean time Madera came on board, with the sextant in his hand; he was in such distress that he scarcely knew what he was about. In this distracted state he sat down to breakfast with us, during which he continued lighting his pipe and smoking as fast as he could; drinking and eating whatever was placed before him. After he had a little recovered himself, he asked what books it would be necessary to read to enable him to make use of the sextant; I gave him a nautical almanac, and told him that he must understand that in the first instance: he opened it, and, looking at the figures, held up his hands in despair, and was at last forced to confess that it was a hopeless business. He therefore put the sextant up and bade us farewell. Before he left the *Lyra* he gave Mr. Clifford his pipe, tobacco pouch, and a crystal ornament; saying, as he held out the last, 'You go Injeree, you give this to your child.'

Mr. Clifford gave him a few presents in return, and expressed his anxiety to be considered his friend. Madera, with the tears streaming

down his cheeks, placed his hand several times upon his heart, and cried, 'Eedooshee, edooshee!' My friend, my friend!

'To me he gave a fan and a picture of an old man looking up at the sun, drawn, he said, by himself; he probably meant in his picture some allusion to my usual occupation at the observatory. After he had put off in his boat, he called out, 'Ingeree noo choo sibiittee yootoosha,' I shall ever remember the English people. When he went to the Alceste, one of the chiefs remarked that he had neither his hatchee-matchee on nor his robes, and told him that it was not respectful to wait upon captain Maxwell, for the last time, in his ordinary dress; particularly as all the others were in full array. Madera, who, poor fellow, had been too much concerned about other matters to think of dress, was shocked at this apparent want of politeness, and went immediately to apologise to captain Maxwell, who took him by the hand, and gave him a present, telling him, at the same time, that he was always too happy to see him to notice what dress he had on.

'On going into the cabin, I found the chiefs seated in a row, all very disconsolate, and apparently trying to conceal emotions different, in all probability, from any which they had ever before experienced. Captain Maxwell had made them his parting present, and I, therefore, gave to each chief some trifle, receiving from them in return, their knives, pipes, pouches, and fans. In the mean time the anchor was hove up, and, every thing being ready for making sail, the chiefs rose to take leave. Ookooma wished to say something, but was too much affected to speak, and before they reached their boats they were all in tears.

'Madera cried bitterly as he shook hands with his numerous friends, who were loading him with presents.

'The chiefs, as well as the people in the numerous canoes which had assembled round the ships, stood up, and continued waving their fans and handkerchiefs till we were beyond the reefs, and could see them no longer.'

'Polygamy,' says captain Hall, 'is not allowed in Loo-choo as in China; they invariably spoke with horror of the Chinese practice, which allows a plurality of wives, and were much gratified on learning that the English customs in this respect were similar to those of Loo-choo.' Su-poa-quang asserts, on the contrary, that polygamy is allowed as in China; but that the young men and women see each other before marriage, and choose for themselves. The complete state of degradation in which the females are, from both accounts, indeed, placed, detracts not a little from the many good qualities of these islanders.

LOOE, EAST, or EAST LOW, an ancient borough of Cornwall, incorporated by charter from queen Elizabeth, twelve miles west of Plymouth and 233½ W.S.W. of London. It has two fairs, and a battery of four guns: and is connected with West Looe by a large stone bridge of fifteen arches. It is governed by a mayor, recorder, aldermen, and nine burgesses. It sent two members to parliament (who were chosen by

the mayor, burgesses, and freemen), until the year 1832. The corporation has the toll of the market, and holds the manor of the town of the duchy of Cornwall, at a fee-farm rent of 20s. per annum. The surrounding country is well furnished with gentlemen's seats, and a little higher up the tin works begin. Market on Saturday.

LOOE, WEST, or WEST LOW, a town of Cornwall, opposite to East Looe. It has a fair, was a borough, and sent two members to parliament, the right of election being in the mayor, burgesses, and freemen, in number about fifty-five. West Looe also sent members to parliament, but was disfranchised in 1832. The corporation, by Elizabeth's charter, consists of a mayor, twelve burgesses, &c. West Looe is also called Port Pigham. The manor anciently belonged to the crown, and was annexed by Henry III. to the duchy of Cornwall, of which it is now held by the corporation. Although the harbour is not large, it is commodious, and is defended by a strong battery; the river is navigable for vessels of 100 tons.

LOOFED, adj. From aloof. Gone to a distance.

She once being *looft*, Antony
Claps on his sea-wings, like a doating mallard,
Leaving the fight.

Shakspeare. Antony and Cleopatra.

LOOK, v. n., v. a. & n. s. } Sax *loc*, *locan* ;
LOOK'ER, n. s. } Teut. *lug*, *lügen* ;
LOOK'ING-GLASS. } Belg. *louken*. To

see; have the power of vision; seem; have or assume any kind of appearance, air, mien, or manner; to direct the mind's eye or expectation; to watch; take care: as an active verb, to seek; search; regard; influence by looks. It takes almost any of the prepositions after it. The so-called interjection look is clearly the imperative mood of the verb. Look, as a substantive, means air or contour, particularly of the face; the act or exercise of looking or vision. A looker, one who is practising it; a 'looker on,' a mere spectator.

And Jhesus answeride and seide to hem, *lake ye*
that no man deceyve you. *Wiclif. Matt. 24.*

Abimelech *looked* out at a window, and saw Isaac. *Genesis.*

He was ruddy, and of a beautiful countenance,
and goodly to *look* to. *1 Sam. xvi. 12.*

Let us *look* one another in the face.

2 Kings, xiv. 8.

Thou wilt save the afflicted people, but wilt bring
down high *looks*. *Psaln xviii. 27.*

He had *looked* round about on them with anger. *Mark iii.*

If we sin wilfully, after that we have received the knowledge of the truth, there remaineth no more sacrifice for sins, but certain fearful *looking for* of judgment. *Heb. x.*

Looking my love, I go from place to place,
Like a young fawn that late had lost the hind,
And seek each where. *Spenser.*

Being a labour of so great difficulty, the exact performance thereof we may rather wish than *look for*. *Hooker.*

Such labour is then more necessary than pleasant, both to them which undertake it, and for the *lookers on*. *Id.*

She *looks* as clear
As morning roses newly washed with dew.

Shakspeare.

Nay, *look* not big, nor stamp, nor stare, nor fret,
I will be master of what is mine own. *Id.*

Your queen died, she was more worth such gazes
Than what you *look* on now. *Id. Winter's Tale.*

The gods *look down*, and the unnatural scene
They laugh at. *Id. Coriolanus.*

What haste *looks* through his eyes? *Shakspeare.*

His nephew's levies to him appeared
To be a preparation against the Polack;
But, better *looked into*, he truly found
It was against your highness. *Id. Hamlet.*
Thou

Shalt feel our justice, in whose easiest passage
Look for no less than death. *Id. Winter's Tale.*

Let this fellow be *looked to*: let some of my people
have a special care of him. *Shakspeare.*

Thou cream-faced loon!
Where got'st thou that goose *look*?
Shakspeare.

My business in this state
Made me a *looker on* here in Vienna;
Where I have seen corruption boil and bubble
Till it o'er-run the stew. *Id. Measure for Measure.*

Command a mirror hither straight,
That it may shew me what a face I have,
—Go some of you and fetch a *looking-glass*.
Shakspeare.

The state would cast the eye, and *look about* to see
whether there were any head under whom it might
unite. *Bacon.*

In regard of our deliverance past, and our danger
present and to come, let us *look up* to God, and every
man reform his own ways. *Id. New Atlantis.*

In dealing with cunning persons, it is good to say
little to them, and that which they least *look for*.
Id. Essays.

Some come to meet their friends, and to make
merry; others come only to *look on*. *Bacon.*

Look, when the world hath fewest barbarous people,
but such as will not marry, except they know means
to live, as it is almost every where at this day, ex-
cept Tartary, there is no danger of inundations of
people. *Id. Essays.*

Can these, or such, be any aids to us?
Look they as they were built to shake the world,
Or be a moment to our enterprize? *Ben Jonson.*

Did not this fatal war affront thy coast,
Yet sattest thou an idle *looker on*? *Fairfax.*

It will import those men who dwell careless to
look about them; to enter into serious consulta-
tion, how they may avert that ruin. *Decay of Piety.*

Pride ever *looks* at the highest. *Bp. Hall.*

If you find a wasting of your flesh, then *look about*
you, especially if troubled with a cough. *Harvey on Consumptions.*

Inordinate anxiety, and unnecessary scruples in
confession, instead of setting you free, which is the
benefit to be *looked for* by confession, perplex you the
more. *Taylor.*

Each seemed to act that part he came to see,
And none was more a *looker-on* than he. *Denham.*

If he long deferred the march, he must *look to* fight
another battle before he could reach Oxford. *Clarendon.*

This mistake was not such as they *looked for*; and,
though the error in form seemed to be consented to,
yet the substance of the accusation might be still in-
sisted on. *Id.*

That which was the worst now least afflicts me,
Blindness, for had I sight, confused with shame,
How could I once *look up*, or heave the head? *Milton.*

Look now for no enchanting voice, nor fear
The bait of honied words. *Id.*

Casting my eye upon so many of the general bills
as next came to hand, I found encouragement from
them to *look out* all the bills I could. *Grant.*

Shepherds *your* pipe, when his harsh sound testifies
anguish, into the fair *looker on*, pastime not passion
enters. *Sidney.*

Do we not all profess to be of this excellent re-
ligion? but who will believe that we do so, that shall
look upon the actions, and consider the lives of the
greatest part of Christians? *Tillotson.*

We are not only to *look at* the bare action, but at
the reason of it. *Stillington.*

Piety, as it is thought a way to the favour of God;
and fortune, as it *looks* like the effect either of that,
or at least of prudence and courage, beget authority.
Temple.

Fate sees thy life lodged in a brittle glass,
And *looks* it through, but to it cannot pass. *Dryden.*

Thus pondering, he *looked under* with his eyes,
And saw the woman's tears. *Id. Knight's Tale.*

Bertran! if thou darest, *look out*
Upon yon slaughtered host. *Id. Spanish Fryar.*

Cowards are offensive to my sight;
Nor shall they see me do an act that *looks*
Below the courage of a Spartan king. *Dryden.*

I must with patience all the terms attend,
Till mine is called; and that long *looked for* day
Is still encumbered with some new delay. *Id.*

Look o'er the present and the former time,
If no example of so vile a crime
Appears, then mourn. *Id. Juvenal.*

Such a spirit must be left behind!
A spirit fit to start into an empire,
And *look* the world to law. *Id. Cleomenes.*

Then on the croud he cast a furious *look*,
And withered all their strength. *Dryden.*
Then gracious Heaven for nobler ends designed,
Their *looks* erected, and their clay refined. *J. Dryden, jun.*

They'll rather wait the running of the river dry,
than take pains to *look about* for a bridge. *L'Estrange.*

The dog's running away with the flesh, bids the
cook *look* better to it another time. *Id.*

We should make no other use of our neighbour's
faults, than as a *looking-glass* to mend our own man-
ners by. *Id.*

They will not *look* beyond the received notions
of the place and age, nor have so presumptuous
a thought as to be wiser than their neighbours. *Locke.*

Intellectual beings, in their constant endeavours
after true felicity, can suspend this prosecution in
particular cases, till they have *looked* before them,
and informed themselves, whether that particular
thing lie in their way to their main end. *Id.*

Every one, if he would *look into* himself, would
find some defect of his particular genius. *Id.*

He that gathered a hundred bushels of apples,
had the rely a property in them: he was only to *look*
that he used them before they spoiled, else he robbed
others. *Id.*

Politeness of manners, and knowledge of the world,
should principally be *looked after* in a tutor.
Id. on Education.

To complain of want, and yet refuse all offers of a supply, *looks* very sullen. *Burnet.*

He *looked upon* it as morally impossible, for persons infinitely proud to frame their minds to an impartial consideration of a religion that taught nothing but self-denial and the cross. *South.*

There is none so homely but loves a *looking-glass*. *Id.*

A solid and substantial greatness of soul *looks down* with a generous neglect on the censures and applauses of the multitude. *Addison.*

Should I publish any favours done me by your lordship, I am afraid it would *look* more like vanity than gratitude. *Id.*

He wished he had indeed been gone,
And only to have stood a *looker on*. *Id. Ovid.*

If a harmless maid
Should ere a wife become a nurse,
Her friends would *look on* her the worse. *Prior.*

Though I cannot tell what a man says; if he will be sincere, I may easily know what he *looks*. *Collier.*

Is a man bound to *look out* sharp to plague himself? *Id.*

Look you! we that pretend to be subject to a constitution, must not carve out our own quality; for at this rate a cobbler may make himself a lord. *Id. on Pride.*

The optick nerves of such animals as *look* the same way with both eyes, as of men, meet before they come into the brain; but the optick nerves of such animals as do not *look* the same way with both eyes, as of fishes, do not meet. *Newton's Opticks.*

It will be his lot to *look* singular, in loose and licentious times, and to become a by-word. *Atterbury.*

The more frequently and narrowly we *look into* the works of nature, the more occasion we shall have to admire their beauty. *Id.*

John's cause was a good milch cow, and many a man subsisted his family out of it: however, John began to think it high time to *look about* him. *Arbuthnot's History of John Bull.*

Those prayers you make for your recovery are to be *looked upon* as best heard by God, if they move him to a longer continuance of your sickness. *Wake's Preparation for Death.*

Where a foreign tongue is elegant, expressive, and compact, we must *look out* for words as beautiful and comprehensive as can be found. *Felton on the Classics.*

This makes it *look* the more like truth, nature being frugal in her principles, but various in the effects thence arising. *Cheyne.*

Late, a sad spectacle of woe, he trod
The desert sands, and now he *looks* a god. *Pope.*

The curious are *looking out*, some for flattery, some for ironies, in that poem, the sour folks think they have found out some. *Swift.*

From the vices and follies of others, observe how such a practice *looks* in another person, and remember that it *looks* as ill, or worse, in yourself. *Watts.*

Look out of your door—take notice of that man; see what disquieting, intriguing, and shifting, he is content to go through, merely to be thought a man of plain dealing; three grains of honesty would save him all his trouble:—alas! he has them not. *Sterne.*

The present life is a state of trial, wherein virtue or holiness is necessary, not only to entitle us to that salvation which, through the mercy of God and the
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merits of his Son, Christians are taught to *look for*; but also to prepare us, by habits of piety and benevolence, for a reward; which none but the pure in heart can receive, or could relish. *Heattie.*

The sick penitent, therefore, should be often reminded of this:—that nothing will be *looked upon* as true repentance, but what would terminate in a holy life. *Paley.*

Shakespeare paints so very close to nature, and with such marking touches, that he gives the very *look* an actor ought to wear when he is on his scene. *Cumberland.*

I've *looked* on Ida with a Trojan's eye.
Athos, Olympus, Ætna, Atlas, made
These hills seems things of lesser dignity. *Byron.*

LOOK OUT. There is always a look-out kept on a ship's fore-castle at sea, to watch for any dangerous objects lying near her track, and to which she makes a gradual approach as she advances: the mate of the watch accordingly calls often from the quarter-deck, 'Look out afore there!' to the person appointed for this service.

LOOKING-GLASSES. See **GLASS.**

LOOL, in metallurgy, a vessel made to receive the washings of ores of metals. The heavier or more metalline part of the ores remain in the trough in which they are washed; the lighter and more earthy run off with the water, but settle in the lool.

LOOM, *n. s.* Swed. *lom*; Dan. *loom*; French *lumma*. A sea-fowl.

A *loom* is as big as a goose; of a dark color, dappled with white spots on the neck, back, and wings; each feather marked near the point with two spots: they breed in Farr Island. *Grew.*

LOOM, *n. s.* Sax. *loma*; Goth. *lom*, which also signify **LIMB**, see that word. A jointed frame or instrument of weaving.

Minerva, studies to compose
Her twisted threads, the web she strung,
And o'er a *loom* of marble hung. *Addison.*

A thousand maidens ply the purple *loom*,
To weave the bed, and deck the regal room. *Prior.*

He must leave no uneven thread in his *loom*, or by indulging to any one sort of reproveable discourse himself, defeat all his endeavours against the rest. *Government of the Tongue.*

Breathe still softer, or be chid;
And other worlds send odours, sauce, and song,
And robes, and notions, framed in foreign looms. *Young.*

These men never destroyed their *looms* till they were become useless, worse than useless; till they were become actual impediments to their exertions in obtaining their daily bread. *Byron.*

LOOM, in weaving, is a machine whereby many distinct threads are woven into one piece. Looms are of various structures, accommodated to the various kinds of materials to be woven, and the various manner of weaving them: viz. for woollens, silks, linens, cottons, cloths of gold; and other works, as tapestry, ribands, stockings, &c., which will be found under their proper heads. See **WEAVING**. The weaver's loom-engine, otherwise called the Dutch loom-engine, was brought into use from Holland to London, in or about 1676. See **COTTON**.
U

LOON, *n. s.* Sax. *lun*, lean; Goth. *laun*; Teut. *lohn* (hire); Scot. *loun*. A servant; a country fellow; a low fellow.

Thou cream-faced loon!

Where got'st thou that goose look?

Shakspeare. Macbeth.

The false loon, who could not work his will
By open force, employed his flattering skill
I hope, my lord, said he, I not offend;
Are you afraid of me that are your friend? *Dryden.*
This young lord had an old cunning rogue, or, as
the Scots call it, a false loon of a grandfather, that
one might call a Jack of all trades.

Arbuthnot's History of John Bull.

LOONGHEE, a town of the Burmese empire, on the Irrawaddy river, across which is a remarkable ridge of rocks that the natives have a tradition is a petrified cable. The neighbourhood is famous for its fine cattle. Long. 91° 55' E., lat. 19° 41' N.

LOOP, *n. s.* Goth. *laup*; Belg. *loop*, *loopen*, to run. A running

LOOP'NOTE, *n. s.* knot, or noose; the doubled

LOOP'HOLED, *adj.* part of a string: hence any ornamental double, or fringe consisting of doubles: loophole, an aperture, or hole to give passage: hence evasion; shift; mental doubling.

Fifty loops shalt thou make in the one curtain, and fifty loops shalt thou make in the edge of the curtain that is in the coupling of the second, that the loops may take hold one of another. *Exod. xxvi. 5.*

Nor anie skil'd in workmanship embossed
Nor anie skil'd in loupes of fingering fine,
Might with their diverse cunning ever dare,
With this so curious net-worke to compare.

Spenser.

Make me to see't, or at least so prove it,
That the probation bear no hinge, nor loop,
To hang a doubt on. *Shakspeare. Othello.*

Poor naked wretches, wheresoe'er you are,
That bid the pelting of this pitiless storm!
How shall your houseless heads and unfed sides,
Your looped and windowed raggedness, defend you
From seasons such as these? *Id. King Lear.*

The Indian herdsman, shunning heat,
Shelters in cool, and tends his pasturing herds,
At loopholes cut through thickest shades. *Milton.*

Ere the blabbing eastern scout,
The nice morn on the Indian steep,
From her cabined loophole peep. *Id.*

This uneasy loopholed gaol,
In which y' are hampered by the fetlock,
Cannot but put y' in mind of wedlock.

Hudibras.

Walk not near yon corner house by night; for
there are blunderbusses planted in every loophole, that
go off at the squeaking of a fiddle.

Dryden's Spanish Fryar.

An old fellow shall wear this or that sort of cut
in his cloaths with great integrity, while all the rest
of the world are degenerated into buttons, pockets,
and loops. *Addison.*

Loop, in the iron works, is a part of a sow or block of cast iron broken or melted off from the rest, and prepared for the forge or hammer. The usual method is, to break off the loop of about three-fourths of a hundred weight. This loop they take up with their slinging tongs, and beat it with iron sledges upon an iron plate near the fire, that so it may not fall to pieces, but be in a condition to be carried under the hammer. It is then placed under the hammer, and, a

little water being drawn to make the hammer move but softly, it is beaten very gently, and by this means the dross and foulness are forced off; and after this they draw more and more water by degrees, and beat it more and more till they bring it to a square mass, of about two feet long, which they call a bloom.

LOOP'ING, in metallurgy, a word used by the miners of some counties of England to express the running together the matter of an ore into a mass, in the roasting or first burning, intended only to calcine it so far as to make it fit for powdering. This accident, which gives the miners some trouble, is generally owing to the continuing the fire too long in this process.

LOORD, *n. s.* Belg. and Teut. *loerd*; Fr. *lourdant*; Erse. *lurdan*. A heavy, stupid, or witless fellow: obsolete. Spenser's Scholiast says, *loord* was wont, among the old Britons, to signify a lord; and therefore the Danes, that usurped their tyranny here in Britain, were called, for more dread than dignity, *lurdant*, i. e. lord Danes, whose insolence and pride was so outrageous in this realm, that if it fortune'd a Briton to be going over a bridge, and to see the Dane set foot upon the same, he must return back till the Dane was clean over, else he must abide no less than present death: but, being afterwards expelled, the name of *lurdane* became so odious unto the people whom they had long oppressed, that, even at this day, they use for more reproach to call the quartan ague the fever *lurdane*. So far the Scholiast, but erroneously. From Spenser's own words, it signifies stupid dulness rather than magisterial arrogance. A drone.

Siker, thou'st but a lazy loord,
And rekes much of thy swinke,
That with foud terms and witless words
To bleer mine eyes do'st think.

Spenser's Pastorals.

LOOSA, in botany, a genus of the monogynia order, in the polyandria class of plants: cal. pentaphyllous, superior; there are five subovate, cucullated, and large petals; the nectarium consists of five leaves, gathered into a conical figure, each terminated by two filaments: caps. is turbinate, unilocular, and trivalved at top; the seeds are very numerous; and there are three linear and longitudinal sinuses.

LOOSE, *v. a., v. n., adj., & n. s.* Sax. *leaz*, *leagan*; Goth. *laus*; Swed. *loos*; Teut. *loos*.

LOOSE'LY, *adv.*

LOOS'EN, *v. n., v. a., & adj.*

LOOS'ENESS, *n. s.*

Belg. *los*; Dan. *loes*; Gr. *λυσις, λυσω*. To make or set free; unbind; untie; detach; disengage: hence, to deliver from obligation, perplexity, or trouble: as a neuter verb, to set sail or depart by loosing anchor: as an adjective, unshackled; unbound; detached; not fast, fixed, tied, or close; unconnected; hence, free in any sense, not rigid, or accurate; not enslaved or bound to; not strict in expression; vague, indeterminate, or immoral; unchaste; wanton: to break loose is to obtain liberty with more or less of violence; to set loose; to place in a state of liberty or freedom from restraint of some kind: loose as a substantive is a barbarous synonyme of liberty; Bacon uses it for dismissal from:

restraint : to loosen is to separate, part asunder, or lead to separation ; also, as a verb active, to relax ; make less compact or coherent ; free from restraint ; make less costive : the adverb and noun substantive, looseness, follow these senses.

And let the living bird *loose* into the open field.

Canst thou *loose* the bands of Orion ?
Lo ! I see four men *loose* walking.

The captive hasteneth that he may be *loosed*.
Loose him, and bring him to me.

The shoes of his feet I am not worthy to *loose*.

Ye should have hearkened, and not have *loosed* from Crete.

Art thou *loosed* from a wife ? seek not a wife.

Who is worthy to *loose* the seals thereof ?

Courtly court he made still to his dame,
Poured out in *looseness* on the grassy ground,
Both careless of his health and of his fame.

Fair Venus seemed unto his bed to bring
Her, whom he waking evermore did ween
To be the chaste flower that ay did spring
On earthly branch, the daughter of a king,
Now a *loose* leman to vile service bound.

Her golden locks for haste were *loosely* shed
About her ears.

Because conscience, and the fear of swerving from
that which is right, maketh them diligent observers
of circumstances, the *loose* regard whereof is the nurse
of vulgar folly.

We have not *loosely* through silence permitted
things to pass away as in a dream.

The emperor *loosing* from Barcelona, came to the
port of Mago, in the island of Minorca.

But in what habit will you go along ?
— Not like a woman ; for I would prevent the *loose*
encounters of lascivious men.

If he should intend his voyage towards my wife,
I would turn her *loose* to him ; and, what he gets
more of her than sharp words, let it lie on my head.

A prince should not be so *loosely* studied, as to
remember so weak a composition.

Loosing thence by night, they were driven by con-
trary winds back into his port.

A bishop, living *loosely*, was charged that his con-
versation was not according to the apostles' lives.

It is but a *loose* thing to speak of possibilities,
without the particular designs ; so is it to speak of
lawfulness without the particular cases.

Air at large maketh no noise, except it be sharply
percussed ; as in the sound of a string, where air is
percussed by a hard and stiff body, and with a sharp
loose.

Fear *looseneth* the belly ; because, the heat retiring
towards the heart, the guts are relaxed in the same
manner as fear also causeth trembling.

The cause of the casting of skin and shell should
seem to be the *looseness* of the skin or shell, that
sticketh not close to the flesh.

He endeavoured to win the common people, both
by strained curtesy and by *looseness* of life.

He *loosed* and set at liberty four or five kings of the
people of that country that Berok kept in chains.

I account this body nothing but a close prison to
my soul ; and the earth a larger prison to my body.
I may not break prison, till I be *loosed* by death ;
but I will leave it not unwillingly when I am *loosed*.

We ourselves make our fortunes good or *bad*, and
when God lets *loose* a tyrant upon us, or a sickness,
if we fear to die or know not to be patient, the
calamity sits heavy upon us.

With extended wings a host might pass,
With horse and chariots ranked in *loose* array.

From their foundation *loosing* to and fro,
They plucked the seated hills with all their load.

Part *loosely* wing the region, part more wise
In common, ranged in figure, wedge their way.

When *loose* epistles violate chaste eyes,
She half consents who silently denies.

Ay ; there's the man, who, *loosed* from lust and
pelf,

Less to the pretor owes than to himself.

She breaks her back, the *loosened* sides give way,
And plunge the Tuscan soldiers in the sea.

Like two black storms on either hand,
Our Spanish army and the Indians stand ;
This only space betwixt the clouds is clear,
Where you, like day, broke *loose* from both appear.

Come, and forsake thy cloying store,
And all the busy pageantry

That wise men scorn, and fools adore :
Come give thy soul a *loose*, and taste the pleasures
of the poor.

The chiming of some particular words in the
memory, and making a noise in the head, seldom
happens but when the mind is lazy, or very *loosely*
and negligently employed.

If to break *loose* from the conduct of reason, and
to want that restraint of examination which keeps us
from chusing the worse, be liberty, madmen and fools
are the only freemen.

If improvement cannot be made a recreation, they
must be let *loose* to the childish play they fancy ;
which they should be weaned from, by being made
surfeit of it.

What hath a great influence upon the health, is
going to stool regularly : people that are very *loose*
have seldom strong thoughts, or strong bodies.

He has within himself all degrees of perfection
that exist *loosely* and separately in all second beings.

This is to cut the knot, when we cannot *loose* it.

Fame makes the mind *loose* and gayish, scatters
the spirits, and leaves a kind of dissolution upon all
the faculties.

Now I stand
Loose of my vow ; but who knows Cato's thoughts ?

Lucia, might my big swoln heart
Vent all its griefs, and give a *loose* to sorrow,
Marcia could answer thee in sighs.

The fiery Pegasus disdains
To mind the rider's voice, or hear the reins !

When glorious fields and opening camps he views,
He runs with an unbounded *loose*.

A general *looseness* of principles and manners hath
seized on us like a pestilence, that walketh not in
darkness, but wasteth at noon-day.

Fat meats, in phlegmatick stomachs, procure
looseness and hinder retention.

Arbuthnot on Aliments.

When the polypus appears in the throat, extract it that way, it being more ready to *loosen* when pulled in that direction than by the nose. *Sharp's Surgery.*

If an author be *loose* and diffuse in his style, the translator needs only regard the propriety of the language. *Felton.*

Those few that clashed might rebound after the collision; or, if they cohered, yet by the next conflict might be separated again, and so on in an eternal vicissitude of fast and *loose*, though without ever consociating into the bodies of planets. *Bentley.*

The stage how *loosely* does Astræa tread,

Who fairly puts all characters to bed! *Pope.*

Vario spends whole mornings in running over *loose* and unconnected pages, and with fresh curiosity is ever glancing over new words and ideas, and yet treasures up but little knowledge. *Watts on the Mind.*

O ye, to Pleasure who resign the day,
As *loose* in Luxury's clasping arms you lie,
O yet let pity in your breast bear sway,
And learn to melt at Misery's moving cry. *Beattie.*

Loose waved behind her golden train of hair,
Her sapphire mantle swam diffused in air. *Darwin.*

Though slight was the grasp so mortal cold,
He could not *loose* him from its hold. *Byron.*
The treacherous current works its noiseless way,
The fibres *loosen*, and the roots decay;
Prostrate the beauteous ruin lies; and all
That shared its shelter, perish in its fall. *Canning.*

LOP, *v. a. & n. s.* Goth. *leipa*; Swed. *lopa*, from Teut. *laub*, a leaf, as Skinner thinks: but Sax. *lopa* is 'any sudden manner of cutting,' Thomson. To cut off the branches of trees; to cut off abruptly in any way or respect: that which is lopped off.

Or siker thy head very tottie is,
So on thy corbe shoulder it leans amiss;
Now thyself hath lost both *lop* and top,
As my budding branch thou would'st crop. *Spenser.*

Gentle niece, what stern ungente hands
Have *lopped* and hewed, and made thy body bare
Of her two branches, those sweet ornaments? *Shakspeare.*

The gardener may *lop* religion as he pleases. *Howell.*

The plants whose luxury was *lopped*,
Or age with crutches underpropped. *Cleveland.*

Like two pillars,
Or hollowed bodies, made of oak or fir,
With branches *lopped* in wood, or mountain felled. *Milton.*

So long as there's a head,
Hither will all the mountain spirits fly;
Lop that bud off. *Dryden's Spanish Fryar.*
The oak growing from a plant to a great tree, and then *lopped*, is still the same oak. *Lacke.*

Nor should the boughs grow too big, because they give opportunity to the rain to soak into the tree, which will quickly cause it to decay, so that you must cut it down, or else both body and *lop* will be of little value. *Mortimer.*

Rhyme sure in needless bonds the poet ties,
Procrustes like, the ax or wheel applies,
To *lop* the mangled sense, or stretch it into size. *Smith.*

All that denominated it paradise was *lopped* off by the deluge, and that only left which it enjoyed in common with its neighbour countries. *Woodward's Natural History.*

The hook she bore, instead of Cynthia's spear,
To *lop* the growth of the luxuriant year. *Pope.*

The stoical scheme of supplying our wants, by *lopping* off our desires, is like cutting off our feet when we want shoes. *Swift.*

You call these men a mob, desperate, dangerous, and ignorant; and seem to think that the only way to quiet the 'Bellua multorum capitum,' is to *lop* off a few of its superfluous heads. *Byron.*

LOP, a lake and city of Central Asia, on the great road from Cashgar to China. It is situated on the west side of the desert of Shamo, or Cobi. Marco Polo described the caravans as usually stopping here, in his time, to prepare for crossing that extensive tract.

LOPE, pret. of leap. Obsolete.

With that sprang forth a naked swain,
With spotted wings like peacock's train,
And laughing *lope* to a tree. *Spenser's Pastorals.*

LOPIUS, or LOPHIUS, fishing-frog, toad-fish, or sea-devil; a genus of the branchiostegous order of fishes, whose head is in size equal to all the rest of the body. The most remarkable species is *L. piscatorius*, the common fishing-frog, an inhabitant of the British seas. This singular fish was called by the ancients *βαρπαγος*, and rana, for the same reason that we call it the fishing-frog; because it resembles the frog in a tadpole state. Pliny takes notice of the artifice used by it to take its prey: 'It puts forth the slender horns it has beneath its eyes, enticing by that means the smaller fish to play round, till they come within reach, when it springs on them.' The fishing-frog grows to a large size, some being between four and five feet long. The fishermen on that coast have a great regard for this fish, from a supposition that it is a great enemy to the dog-fish; and, whenever they take it with their lines, set it at liberty. It is a fish of very great deformity: the head is much bigger than the whole body; is round at the circumference, and flat above, the mouth of a prodigious wideness. Mr. Pennant mentions one taken near Scarborough, whose mouth was a yard wide. The under jaw is much longer than the upper: the jaws are full of slender sharp teeth; in the roof of the mouth are two or three rows of the same: at the root of the tongue, opposite each other, are two bones of an elliptical form, thick set with very strong sharp teeth. The nostrils do not appear externally, but in the upper part of the mouth are two large orifices that serve instead of them. On each side the upper jaw are two sharp spines, and others are scattered about the upper part of the head. Immediately above the nose are two long tough filaments, and on the back three others; these are what Pliny calls cornicula. Along the edges of the head and body are a multitude of short fringed skins, placed at equal distances. The aperture to the gills is placed behind; each of these is very wide, so that some writers have imagined it to be a receptacle for the young in time of danger. The body grows slender near the tail, the end of which is quite even. The color of the upper part of this fish is dusky, the lower part white; the skin smooth.

LOQUACIOUS, *adj.* { Lat. *loquax*, *loqua-*
LOQUACITY, *n. s.* } *citius*. Full of talk or
tongue.

Why *loquacity* is to be avoided, the wise man gives
sufficient reason: for in the multitude of words there
wanteth not sin. Ray.

To whom sad Eve,
Confessing soon; yet not before her judge
Bold, or *loquacious*, thus abashed, replied.

Milton.

In council she gives licence to her tongue,
Loquacious, brawling, ever in the wrong.

Dryden.

Blind British bards, with volant touch
Traverse *loquacious* strings, whose solemn notes
Provoke to harmless revels.

Philips.

Too great *loquacity*, and too great taciturnity by
fits. Arbuthnot.

LORANTHUS, in botany, a genus of the monogynia order, in the hexandria class of plants: natural order forty-eighth, aggregatæ: germen inferior: CAL. none: COR. sextid and revolutid; the stamina are at the tops of the petals: BERRY monospermous. There is only one species, a native of America, discovered by F. Plumier, and found growing naturally at La Vera Cruz by Dr. Houston. It rises with a shrubby stalk, eight or ten feet high, dividing into several branches, having at their ends clusters of small scarlet-colored flowers, succeeded by oval berries with a pulpy covering, and a hard shell with one cell, enclosing several compressed seeds. It is propagated by seeds, which should be sown soon after they are ripe; otherwise they are very apt to miscarry, or lie a year in the ground without germinating. The plants require always to be kept in a bark stove.

LORARI, among the Romans, officers whose business it was, with whips and scourges to compel the gladiators to engage. They also punished slaves for disobedience.

LORCA, a large town of Murcia, Spain, divided into the Upper and Lower towns, the latter of which is tolerably regular and well built. It has nine churches and several monasteries. The convents worthy of attention are those of St. Jago and St. Domingo. The front of the great church is also elegant. The inhabitants are descendants of the converted Moors. The manufactures of saltpetre are of great extent: and the public walks are considered beautiful. In 1802 this town suffered materially from the bursting of a reservoir in the neighbourhood. It is forty miles S.S. W. of Murcia, and forty-seven west of Carthagea. Long. 1° 22' W., lat. 37° 25' N.

LORD, *n. s. & v. n.*

LORD'ING, *n. s.*

LORD'ING, *n. s.*

LORD'INGNESS,

LORD'LY, *adj. & adv.*

LORDSHIP.

Saxon *flapond*,

laveond, of *lopan*,

to exalt, and ward,

or worth, dignity.

Superior ruler;

governor; monarch;

the Supreme Being: a nobleman; a tyrant; a husband; an honorary title of various offices and dignities: to lord is to domineer; assume excessive or despotic authority: *lording* and *lordling* are diminutives of lord, used in ridicule or contempt: *lordliness*, dignity, elevated station; pride; hauteur: *lordly*, befitting or aping a lord: *lordship*, power; dominion; superiority;

seigniority; a title of the British and other peerages, and a compellation of judges; the mayors of London and York, &c.

The Lord said unto my Lord, sit thou at my right hand. Psalm cx.

What euer seruauantis ben undir ghoke deme thei her *lordis* worthe al onour lest the name of the Lord and the doctrine be blasphemed. Wiclif. 1 Tymo. 6.

The seruauant is not grettere than his lord.

Id. Jon. 13.

They which are accounted to rule over the Gentiles, exercise *lordship* over them, and their great ones exercise authority upon them. Mark x. 42.

Thinke on the woman Canacee, that saide

That whelpes eten som of the cromes alle

That from her *lordes* table becn yfalle.

Chaucer. The Second Nonnes Tale, v. 15528.

Grant harvest lord more by a penny or two,
To call on his fellows the better to do. Tusser.

Unrighteous lord of love! what law is this,
That me thou makest thus tormented be!

The whiles she *lordeth* in licentious bliss
Of her free will, scorning both thee and me.

Spenser.

How can those grants of the kings be avoided,
without wronging of those *lords* which had those
lands and *lordships* given them? Id. On Ireland.

I'll question you

Of my *lord's* tricks, and yours, when you were
boys.

You were pretty *lordings* then.

Shakspeare. Winter's Tale.

Thou vouchsafest here to visit me,

Doing the honour of thy *lordliness*

To one so weak. Id. Antony and Cleopatra.

Bad as yourself, my lord;

An't like your *lordly* lord protectorship?

Shakspeare.

Now being assembled into one company, rather
without a lord than at liberty to accomplish their
misery, they fall to division. Hayward.

Needs must the *lordship* there from virtue slide.

Fairfax.

I assure your *lordship*,

The extreme horror of it almost turned me

To air, when first I heard it. Ben Jonson.

There is *lordship* of the fee, wherein the master
doth much joy, when he walketh about his own pos-
sessions. Wotton.

Nor were the crimes objected against him so clear,
as to give convincing satisfaction to the major part of
both houses, especially that of the *lords*.

King Charles.

What a little lord hast thou made over this great
earth. Bp. Hall.

Those huge tracts of ground they *lorded* over, begat
wealth, wealth ushered in pride. Howell.

They had by this possessed the towers of Gath,
And *lorded* over them whom they now serve.

Milton.

Man over man

He made not lord. Id.

Of me as of a common enemy,

So dreaded once, may now exasperate them,
I know not: *lords* are *lordliest* in their wine. Id.

It being set upon such an insensible rising of the
ground, it gives the eye *lordship* over a good large
circuit. Sidney.

He was confounded and disanimatd at his pre-
sence, and added, How can the servant of my lord
talk with my lord? Boyle's Seraphic Love.

'Tis death to fight, but kingly to controul

Lord-like at ease, with arbitrary power,
To peel the chiefs, the people to devour. Dryden.

But if thy passion *lord* it in thy breast,
Art thou not still a slave? *Id. Persius.*

So when a tyger sucks the bullock's blood,
A famished lion, issuing from the wood,
Roars loudly fierce, and challenges the food.

Dryden.

What lands and *lordships* for their owner know
My quondam barber, but his worship now. *Id.*

We have our author's only arguments to prove,
that heirs are *lords* over their brethren. *Locke.*

The valour of one man the afflicted throne
Imperial, that once *lorded* o'er the world,
Sustained. *Philips.*

I should choose rather to be tumbled into the dust
in blood, bearing witness to any known truth of our
Lord, than by a denial of truths, through blood and
perjury wade to a sceptre, and *lord* it in a throne.

South.

Lordly sins require *lordly* estates to support them.
Id.

They called their *lord* Actæon to the game,
He shook his head in answer to the name.

Addison.

I oft in bitterness of soul deplored
My absent daughter, and my dearer *lord*.

Pope.

To *lordlings* proud I tune my lay,
Who feast in bower or hall;
Though dukes they be, to dukes I say,
That pride will have a fall. *Swift.*

Traulus, of amphibious breed,
By the dam from *lordlings* sprung,
By the fire exhaled from dung. *Id.*

O'er love, o'er fear, extends his wide domain,
Unconquered *lord* of pleasure and of pain.

Vanity of Human Wishes.

All hail! inexorable *lord*!

At whose destruction-breathing word

The mightiest empires fall!

Thy cruel, woe-delighted train,

The ministers of grief and pain,

A sullen welcome, all! *Burns.*

The sun that overhangs you moors,

Out-spreading far and wide,

Where hundreds labour to support

A haughty *lordling's* pride. *Id.*

LOR is a title of honor given to those who are noble, either by birth or creation, amounting to much the same as peer of the realm. The title is by courtesy also given to all the sons of dukes and marquises, and to the eldest sons of earls. The Saxon word, *hlaford*, is abbreviated from *illaford* to *laford* and *lord*. 'The etymology of the word,' says J. Coates, 'is well worth observing; for it was composed of *illaf*, a loaf of bread, and *ford*, to give or afford; so that *illaford* implied a giver of bread; because, in those ages, such great men kept extraordinary houses, and fed all the poor; for which reason they were called givers of bread, a thing now much out of date, great men being fond of retaining the title, but few regarding the practice for which it was first given.'

LORDS, HOUSE OF, one of the three estates of parliament, composed of the lords spiritual and temporal. The following are among the peculiar privileges of the house of lords:—1. One very ancient privilege is declared by the charter of the forest, confirmed in parliament by 9 Hen. III.: viz. that every lord, spiritual or temporal, summoned to parliament, and passing through the king's forests, may, both in going and

returning, kill one or two of the king's deer without warrant; in view of the forester if he be present, or on blowing a horn if he be absent; that he may not seem to take the king's venison by stealth. 2. They have a right to be attended, and constantly are, by the judges of the court of king's bench and common pleas, and such of the barons of the exchequer as are of the degree of the coif, or have been made serjeants at law; also by the king's learned counsel, being serjeants; and by the masters of the court of chancery, for their advice in point of law, and for the greater dignity of their proceedings. The secretaries of state, with the attorney and solicitor general, also used to attend the house of peers, and have to this day (together with the judges, &c.) their regular writs of summons issued out at the beginning of every parliament, ad tractandum et consilium impendendum, though not ad consentiendum: but whenever, of late years, they have been members of the house of commons, their attendance in the house of lords has fallen into disuse. 3. Every peer, by license obtained from the king, may make another lord of parliament his proxy, to vote for him in his absence; a privilege which a member of the other house can by no means have, as he himself is but a proxy for a multitude of other people. 4. Each peer has a right, by leave of the house, when a vote passes contrary to his sentiments, to enter his dissent on the journal of the house, with the reasons for such dissent; which is usually styled his protest. 5. All bills, that may in their consequences in any way affect the rights of the peerage, are by the custom of parliament to have their first rise in the house of peers, and to suffer no changes or amendments in the house of commons. 6. There is also one statute peculiarly relative to the house of lords, 6 Ann. c. 13, which regulates the election of the sixteen representative peers of North Britain in consequence of the twenty-second and twenty-third articles of the union: and for that purpose prescribes the cathis, &c., to be taken by the electors; directs the mode of balloting; prohibits the peers electing from being attended in an unusual manner; and expressly provides that no other matter shall be treated of, in that assembly, save only the election, on pain of incurring a praemunire; and a similar act was passed in 1800, regulating the elections of the Irish peers. See PEERS OF ENGLAND, and GREAT BRITAIN, and LAW.

LORE, *n. s.* Saxon *lær*, *læpan*, to learn; Goth. *lær*. Learning; doctrine; lesson; instruction.

This markis yet his wife to tempten more
To the uttereste preesse of hire corage,
Fully to have experience and *lore*
If that she were as stedfast as before.

Chaucer. Cant. Tales.

And, for the modest *lore* of maidenhood,
Bids me not sojourn with these armed men,
Oh whither shall I fly?

Fairfax.

The law of nations, or the *lore* of war.

Id.

Calm regions once,
And full of peace; now tost, and turbulent!
For understanding ruled not; and the will
Heard not her *lore*! but in subjection now
To sensual appetite. *Milton's Paradise Lost.*

Lo; Rome herself, proud mistress now no more
Of arts, but thundering against heathen *love*. *Pope*.
But why should foresight thy fond heart alarm?
Perish the lore that deadens young desire! Beattie.

LOREL, *n. s.* Sax. *leopan*. An abandoned
scoundrel. Obsolete.

Silker thou speakest like a lewd *lorell*
Of heaven to deemest so:
How be I am but rude and borrel,
Yet nearer ways I know. *Spenser's Pastorals.*
Thus sayst thou, *lorel*, when thou gost to bed,
And that no wise man nedeth for to wed.
Chaucer. Cant. Tales.

LORENZO, SAN, a town of Mexico, in New
Biscay, termed the vineyard of Cohahuila, the
whole population (about 600) pursuing no other
occupation than the cultivation of the grape. Its
gardens are delightfully interspersed with figs,
vines, apricots, and a variety of other fruits.

LORETTO, a remarkable town of Italy, in
the papal states, near the mouth of the river Mu-
sone. It is situated on the Adriatic, on a com-
manding eminence, and is surrounded with a
rampart and deep ditch, defended by towers.
The principal street is a double row of mean
shops; and the other edifices are little worth
notice. It owes its celebrity entirely to the
Santa Casa, or house said to have been inhabited
by the Virgin Mary of Nazareth, conveyed
hither, as tradition reports, in 1221, by a band
of angels. In the journey from Galilee the same
authority gives these distinguished carriers a rest-
ing place in Dalmatia. The precious relic now
occupies a conspicuous situation in the cathedral,
and is surrounded with a case of the finest mar-
ble, ornamented with beautiful bas reliefs. The
Casa also contains an image of the Virgin, pro-
fusely adorned with precious stones. On the
invasion of Italy, the French republicans
despoiled this church of its treasures; and even
the image of the Virgin was removed to Paris,
but restored in 1802. The town has, it is said,
of late fallen greatly into decay. Population
6000. Twelve miles S. S. E. of Ancona, and 115
of Rome.

LORICA, in Roman antiquity, was a cuirass,
brigantine, or coat of mail, in use among the
soldiers. It was generally made of leather, and
its name is supposed to be derived from *lorum*,
a thong. The loricae were set with plates of
metal in various forms; sometimes in hooks or
rings like a chain, sometimes like feathers, and
sometimes like the scales of serpents or fishes, to
which plates of gold were often added. There
were many other lighter cuirasses, consisting
only of many folds of linen cloth, or of flax
made strong enough to resist weapons. Such
soldiers as were rated under 1000 drachms, in-
stead of the lorica now described, wore a pecto-
rale. The Roman lorica was made like a shirt,
and defended the wearer both before and behind,
but was so contrived that the back part could be
occasionally separated from the front. Some
of the loricae were made of cords of hemp or
flax, closely set together; whence they are
called thoraces, bilices, trilices, &c., from the
number of the cords fixed one upon another;
but these were used rather in hunting than in
battle.

LORICATE, *v. a.* Lat. *lorica*, a crust or
layer of plaster. To plate or plaster over.

Nature hath *loricated*, or plastered over, the sides
of the tympanum in animals with ear-wax, to stop
and entangle any insects that should attempt to creep
in there. *Ray.*

LORME (Philibert de), one of the most cele-
brated architects in the sixteenth century, was
born at Lyons. Queen Catherine de Medicis
gave him the superintendence of buildings; and
he had the direction of those of the Louvre, the
Thuilleries, the castle of St. Anet, St. Germain's,
and other edifices erected by her orders. He
wrote several books of architecture, which are
esteemed: and died about 1577.

L'ORIENT, a fortified modern sea-port of the
north-west of France, and department of the
Morbihan, situated on the bay of Port Louis, at
the influx of the Scorff. It is built with consider-
able regularity, and the streets are both long and
wide; the public squares spacious and hand-
some; and the harbour large and secure. Ships
of war anchor here in safety, and the trade
of the town was very flourishing under the
French East India Company, who at one time
made it the exclusive entrepôt of their imported
goods. It was declared a free port in 1784, a
privilege which, however, was abrogated at the
revolution. It is still a place of importance, on
account of its magazines for the use of the navy.
Salt is the principal manufacture. An unsucces-
ful attack was made on it by some British ships,
under general Sinclair and admiral Lestock, in
1746. Population 18,000: 340 miles west by
south of Paris.

LORN, *adj.* Sax. *lope*, *lopan*; Belg. *lior*,
Swed. *lora*. Distressed; forsaken; lost.

Thus hath the kite my love in hire service,
And I am *lorn* withouten remedy.

Chaucer. Cant. Tales.

Who after that he had fair Una *lorn*,
Through light misdeeming of her loyalty.

Faerie Queene.

LORRAIN (Henry de), third duke of Guise,
was the son of duke Francis, and grandson of
Claude, the first duke of Guise; and born in
1550. He was a great general, but of an ambi-
tious and turbulent disposition. He formed the
rebellious association called the league, first
planned by his uncle, the cardinal of Lorraine.
Under pretence of defending the Catholic faith,
he acted in open rebellion against Henry III.,
who at last had him assassinated at Blois, whither
he had summoned the duke to appear before
him on the 23d of December 1587. See FRANCE.

LORRAIN (Robert de), an eminent sculptor,
born at Paris in 1666. He made so rapid a
progress in the art of designing, that, at the age
of eighteen, the celebrated Girardon intrusted
him with the care of teaching his children and
correcting his disciples. He committed to him
also, in conjunction with Noulisson, the execu-
tion of the famous tomb of cardinal Richelieu in
the Sorbonne, and his own tomb at St. Landreu
in Paris. On his return from Rome, he finished
several pieces at Marseilles, which had been left
imperfect by the death of Mr. Puget. He was
received into the academy of sculpture in 1701.

His masterpiece is Galatea, a work universally admired. He afterwards made a Bacchus for the gardens at Versailles, a Faun for those of Marly, and several bronzes, among which is an Andromeda. This artist succeeded chiefly in heads; particularly in those of young girls, which he performed with incomparable delicacy and truth. He died governor of the academy in 1742.

LORRAINE, an extensive district of the north-east of France, between Champagne and Alsace, and divided into the four departments of LA MEUSE, LA MOSELLE, LA MEURTHE, and LES VOSGES. See these articles.

LOS ESTEROS BAY, a bay of the coast of New California, of which the shores fall back about five miles from the ocean. Its north point, Porto del Esteros, is about thirteen miles distant from its southern, which is formed by steep cliffs. Long. of the north point 239° 22' E., lat. 35° 31' N.

LOSE, <i>v. a.</i>	} Sax. leorjan, lorjan; Goth. <i>licesan</i> ; Swed. <i>lisa</i> . To miss; part with; expend; be deprived of; forfeit; alienate; abandon: as a neuter verb, not to win; to fail; decline: loseable is subject to loss or privation: losel is an abandoned worthless fellow: loss is privation; detriment; diminution, or forfeiture of good; particularly the shipwreck of a vessel; uselessness; fault or puzzle, as in the phrase 'at a loss': lost, abandoned; imperceptible.
LOSE'ABLE, <i>adj.</i>	
Lo'SEL, <i>n. s.</i>	
LOS'SER, <i>n. s.</i>	
LOSS,	
Lost, <i>part. adj.</i>	

If salt have *lost* its savour, wherewith shall it be salted? *Matthew.*

The fear of the lord goeth before obtaining of authority; but roughness and pride is the *losing* thereof. *Ecclesi. x. 21.*

He that wole make his lyf saaf schal *lese* it, and he that schal *lese* his lyf for me schal fynde it.

Wiclif. Matt. xvi.

By Cambridge a towne I do know,
Whose *losses* by *lossels* doth shew
More heere then is needful to tell.

Tusser's Husbandry.

A *losel* wandering by the way,
One that to bounty never cast his mind,
Ne thought of honour ever did assay

His baser breast. *Fucrie Quene.*

The only gain he purchased was to be capable of *loss* and detriment for the good of others. *Hooker.*

Be not with work of *losels* wit defamed,
Ne let such verses poetry be named.

Hubberd's Tale.

He *lost* his right hand with a shot, and, instead thereof, ever after, used a hand of iron. *Knolles.*

I will go *loss* myself

And wander up and down to view the city.

Shakespeare.

We'll hear poor rogues

Talk of court news, and we'll talk with them too,
Who *loses*, and who wins; who's in, who's out. *Id.*

A gross hag!

And, *losel*, thou art worthy to be hanged,

That wilt not stay her tongue. *Id.*

With the *losers* let it sympathize,

For nothing can seem foul to those that win. *Id.*

There succeeded an absolute victory for the English, with the slaughter of above two thousand of the enemy, with the *loss* but of one man, though not a few hurt. *Bacon.*

Nor are constant forms of prayer more likely to flat and hinder the spirit of prayer and devotion, than unpromeditated and confused variety to distract and *lose* it. *King Charles.*

I am impoverished with *losses*; that was never thoroughly good that may be *lost*. *Bp. Hall.*

If thou hast *lost* thy land, do not also *lose* thy constancy; and, if thou must die a little sooner, yet do not die impatiently.

Taylor's Rule of Living Holy.

No man can be provident of his time that is not prudent in the choice of his company; and if one of the speakers be vain, tedious, and trifling, he that hears, and he that answers, are equal *losers* of their time. *Id.*

These sharp encounters, where always many more men are *lost* than are killed or taken prisoners, put such a stop to Middleton's march, that he was glad to retire. *Clarendon.*

Although indeed man was by his fault a great *loser*, and became deprived of great advantages, yet the mercy of God did leave him in no very deplorable estate, simply considered, as to his life here.

Barrow.

The passages through which spirits are conveyed to the members, being almost infinite, and each of them drawn through so many meanders, it is wonderful that they should perform their regular destinations without *losing* their way. *Glanville.*

By them

I *lost* not what I *lost*, rather by them

I gained what I have gained, and with them dwell

Copartner in these regions of the world,

If not disposer.

Milton.

Wisdom in discourse with her

Loses discountenanced, and like folly shews. *Id.*

They have *lost* their trade of woollen drapery.

Graunt.

Consider whether motion, or a propensity to it, be an inherent quality belonging to atoms in general, and not *loseable* by them. *Boyle.*

It cannot last, because that act seems to have been carried on rather by the interest of particular countries, than by that of the whole, which must be a *loser* by it. *Temple.*

How should you go about to *lose* him a wife he loves with so much passion? *Id.*

The lightened coursers ran;

They rushed, and won by turns, and *lost* the day.

Dryden.

Who conquered him, and in what fatal strife

The youth, without a wound, could *lose* his life.

Id.

Her fellow ships from far her *loss* descried:

But only she was sunk, and all were safe beside.

Id.

Reason is always striving, and always at a *lost*, while it is exercised about that which is not its proper object. *Id.*

When the mind pursues the idea of infinity, it uses the ideas and repetition of numbers, which are so many distinct ideas, kept best by number from running into a confused heap, wherein the mind *loses* itself. *Locke.*

The abatement of price of any of the land-holder's commodities, lessens his income, and is a clear *loss*.

Id.

Losers and malcontents, whose portion and inheritance is a freedom to speak. *South.*

Not the least transaction of *sense* and motion in man, but philosophers are at a *loss* to comprehend.

Smith's Sermons.

His seely back the bunch has got

Which Edwin *lost* before.

Parnell.

We should never *lose* sight of the country, though sometimes entertained with a distant prospect of it.

Addison.

In spite of all the virtue we can boast,
The woman that deliberates is *lost*.

Id.

It would be *loss* of time to explain any further our superiority to the enemy in numbers of men and horse.

Id.

The coast

Where first my shipwrecked heart was *lost*.

Prior.

To *lose* these years which worthier thoughts require,

To *lose* that health which should those thoughts inspire.

Savage.

Fame—few, alas! the casual blessing boast,
So hard to gain, so easy to be *lost*!

Pope.

But if to honour *lost*, 'tis still decreed
For you my bowl shall flow, my flocks shall bleed;
Judge and assert my right, impartial Jove.

Pope.

Like following life in creatures we dissect,
We *lose* it in the moment we detect.

Id.

He has merit, good-nature, and integrity, that are too often *lost* upon great men, or at least are not all three a match for flattery.

Pope's Letters.

But rebel with deserts thee oft in vain,
Lost in the maze of words he turns again.

Id.

I do more complain,

Time, health, and fortune are not *lost* in vain.

Id.

Oft in the passions' wild rotation lost,
Our spring of actions to ourselves is *lost*.

Id.

In seventeen days appeared your pleasing coast,
And woody mountains, half in vapours *lost*.

Pope.

When men are openly abandoned, and *lost* to all shame, they have no reason to think it hard, if their memory be reproached.

Swift.

O! *lost* to virtue, *lost* to manly thought

Lost to the noble sallies of the soul!

Who think it solitude to be alone.

Young.

A man may sometimes be at a *loss* which side to close with.

Baker on Learning.

When you have started a good thought, pursue it; do not presently *lose* sight of it, or suffer any trifling suggestion that may intervene to divert you from it.

Mason.

These pleasures, by repetition, *lose* their relish.

Paley.

Is this man as much overjoyed with gain, and mortified by *losses*, as he was the first day he opened his shop.

Id.

He made no wars, and did not gain

New realms to *lose* them back again.

Byron.

LOT, *n. s. & v. a.* } Sax. *þlot*; Goth. *lut*;
LOTTERY. } Fr. *loterie*; Belg. and Fr.

lot; Swed. *lott*; Ital. *lotto*, all signifying chance.

See LIGHT. Portion; fortune; fate or property assigned: a die, or any thing by which chances are determined: see the quotation from the book of Proverbs. Shakspeare uses it for a good or wished-for chance: *lot*, as a verb, means to dispose of by chances or *lot*: *lottery* is a game or adventure decided by real or supposed chances.

Aaron shall cast *lots* upon the two goats: one *lot* for the Lord, and the other *lot* for the scape-goat.

Lev. xvi. 8.

The *lot* is cast into the lap, but the whole disposal thereof is of the Lord.

Proverbs.

If you have heard your general talk of Rome, And of his friends there, it is *lots* to blanks

My name hath touched your ears; it is Menenius.

Shakspeare.

Let high-sighted tyranny range on,
Till each man drop by *lottery*.

Id.

The *lottery* that he hath devised in these three chests of gold, silver, and lead, will never be chosen by any but whom you shall rightly love.

Id.

Every warrior may be said to be a soldier of fortune, and the best commanders to have a *lottery* for their work.

South.

Kala at length concludes my lingering *lot*:

Disdain me not, although I be not fair.

Who is an heir of many hundred sheep,

Doth beauty keep which never sun can burn,

Nor storms do turn.

Sidney.

Their tasks in equal portions she divides,

And, where unequal, there by *lots* decides.

Dryden.

Fortune, that with malicious joy

Does man, her slave, oppress,

Still various and inconstant still,

Promotes, degrades, delights in strife,

And makes a *lottery* of life.

Id. Horace.

Our own *lot* is best; and, by aiming at what we have not, we lose what we have already.

L'Estrange.

Prepared I stand; he was but born to try

The *lot* of man, to suffer and to die.

Pope's Odyssey.

Ulysses bids his friends to cast *lots*, to shew that he would not voluntarily expose them to so imminent danger.

Broome.

In a like comparative sense, compared, that is, with the general *lot* of mankind, we call a man happy who possesses health and competency.

Paley.

Poland! o'er which the avenging anger past,

But left thee as he found thee, still a waste,

Forgetting all thy still-enduring claim,

Thy *lotted* people and extinguished name,

Thy sigh for freedom, thy long flowing tear,

That sound that crashes in the tyrant's ear.—

Byron.

And here and there a chestnut stood,

The strong oak, and the hardy pine;

But far apart—and well it were,

Or else a different *lot* were mine.—

Id.

Lor, לוֹר, Heb. i. e. joined together, the son of Haran, nephew of Abraham, and progenitor of the Moabites and Ammonites. His separation from Abraham, his captivity by Chedorlaomer, his restoration by the bravery of his uncle, his extraordinary hospitality, his deliverance from the destruction of Sodom, his wife's metamorphosis, with his fatal intoxication, and involuntary incest, are recorded in Genesis xiii. xiv. and xix. His righteous character is particularly taken notice of by the apostle Peter: 2 Ephesians ii. 7, 8. Some trace the immodest worship of Baal-peor, the god of the Moabites and Ammonites, to the involuntary incest of their ancestor. See BAAL-PEOR.

Lor, a department of France, consists of the ancient Quercy, a dependency of the former province of Guienne, and takes its name from the river Lot, which crosses it from east to west. The principal place of this prefecture is Cahors; it contains three arrondissements or sub-prefectures; Cahors having 113,110 inhabitants, Figeac 85,473, and Gourdon 76,713; making a total population of 275,296 souls, on an area of 5058 square miles. It is subdivided into twenty-nine cantons and 440 communes; yields a territorial

revenue of 11,306,000 francs; forms the twentieth military division, having a royal court at Agen, and a bishopric at Cahors; and is divided into four electoral arrondissements, which send five members to the chamber of deputies.

This department is bounded on the north by that of Correze; on the east by those of Cantal and of Aveyron; on the south by that of Tarn-et-Garonne, and on the west by those of Lot-et-Garonne and Dordogne. It is very hilly; some of the hills are bare, but others are covered with wood and vines, that produce very excellent wine: the plains and valleys yield abundance of corn, hemp, tobacco, and highly esteemed fruits. The pastures feed numerous flocks of sheep, which constitute a great part of the commerce. Game, poultry, and fish, are very plentiful. Part of the wine of the country is made into brandy. The climate is healthy but rather cold. The soil, consisting of fat and rich earth, is cultivated with horses, and yields more than sufficient for its population. There are about 23,000 hectares of forests, and 47,000 of vineyards; producing eighteen francs, fifty-seven cent., for each hectare of arable land.

Iron and coal mines are found here, as well as quarries of marble of every color, granite, alabaster, graystone, mill-stones, lithographic stones, calcareous spar, fullers' earth, and clay for glass-house crucibles. At Mien there are mineral waters. The manufactures are ratteens, coarse serges, hats, cotton stuffs, linen for veils, and lace. The trade consists in corn, flour, wine, brandy, walnut oil, hemp, linens, woollen stuffs, cattle, leather, salt, iron, plank timber, haberdashery, grocery, &c.

This department is watered by the Lot and the Dordogne, which are here navigable, and the medium of great maritime commerce, the Selly, the Tarn, the Aveyron, the Cere, and the Azou. It is crossed by the great roads of Toulouse and Limoges.

LOT, THE, a river in France, which rises in the Cevennes Mountains, near the village of Bley-mard, arrondissement of Mende, in the department of Lozere. It passes by Bley-mard, Bagnois-les-Bains, Mende, Chanac, St. Geniez, St. Cosme, Espalion, Estaing, Entraygues, Livignac, Bouillac, Capdenac, Cajare, St. Cirq, Cahors, St. Vincent, Luzech, Puy-L'evêque, Duravel Libos, Villeneuve-d'Agen, St. Livrade, Castelmoron, Clairac, and Aiguillon, below which it falls into the Garonne. The Lot is navigable for timber rafts from St. Laurent-de-Rivedolt to St. Geniez in the department of Aveyron, and navigable from Entraygues to its mouth. In its course, which is about 180 miles, it receives the Truyere, the Dourdon, the Cellé, the Almance, and several other smaller rivers.

LOT-ET-GARONNE, a department of France, is formed out of the Agenais, a dependency of the former province of Guienne, and derives its name from the rivers Garonne and Lot, which flow through it, the first from south to north-east, and the second from north-west to west. The chief place of the prefecture is Agen; it contains four arrondissements or subprefectures, Agen having 84,210 inhabitants; Marmande 99,240; Nérac

57,878; and Villeneuve-d'Agen 92,789, comprising a total population of 330,121 souls, on a superficies of 2565 square miles. It is further subdivided into thirty-eight cantons and 369 communes, yielding a revenue of 20,943,000 francs. It forms a part of the twentieth military division, has a royal court and bishopric at Agen, and contains three electoral arrondissements, which send five members to the chamber of deputies.

This department is bounded on the north by that of Dordogne; on the east by those of Tarn-et-Garonne and Lot; on the south by that of Gers, and on the west by those of Landes and the Gironde. It is intersected by cultivated plains, barren hills, uncultivated lands, marshes, and fine fruitful valleys, watered by the Lot and the Garonne. These valleys overlooked by pleasant elevations planted with fruit trees and vines, which yield tolerably good wines, produce corn in abundance, fruits of all kinds, hemp of an extraordinary tall growth, and the best tobacco in France. Its pastures are but indifferent, and artificial meadows are little known. Towards the south, at a little distance from the Garonne and on the banks of the Lot, the hills become very rugged and utterly incapable of cultivation; in fine, the landes or deserts, which amount to one-eighth part of the whole department, consist of scarcely any thing else than moveable sands, or a scanty vegetation of rye and panic, produced by means of enriching the earth with manure.

The climate of this department is rather temperate, and the air generally healthy, except in the neighbourhood of the marshes. Although the sky here is regarded as the most delightful in France, it is subject to great varieties of rain and drought, which often derange the course of the seasons, and very much injure the harvests. A sort of meteor, called brouillard, is frequently the pest and destruction of the crops. The land being much covered with heath is cultivated with oxen, yielding not quite sufficient for the inhabitants. There are about 26,026 hectares of forests, chiefly oaks, elms, and pines, and 60,000 of vineyards, producing on an average about thirty-four francs sixty centimes per hectare of arable land.

There is here also abundance of great and small game (wild boars, hares, red partridges, &c.), plenty of fresh water fish (salmon, lampreys, shad, and salmon trout); a nursery for the department at Agen; a royal dépôt of standard measures at Villeneuve and quarries of freestone, plaster, marl, potter's clay, &c. The inhabitants carry on extensive manufactures of linen cloth for veils, table linen, cotton goods, printed cottons, and serges; they have also cotton-spinning factories, brandy distilleries, blast furnaces, forges, foundries, flattening-mills, lime-kilns, glass-houses, many paper-mills, tan-yards, currying-shops, dye-houses, &c. Their trade consists in excellent flour, brandy, tobacco, flax, hemp, Agen prunes, bundles of cork, caulking stuff, and tar. The principal rivers that water this department are the Garonne, the Lot, and the Bayse navigable; the Dropt, the Barguelone the Auvignon, the Avance, the Almance, the Lède,

the Gelise, the Gers, the Seine, and the Garonne. It is crossed by the great roads of Mantauban, Auch, and Bourdeaux.

LOTE, *Loros Tree*, or nettle tree, *n. s.* A plant.

The leaves of the *lote* tree are like those of the nettle. The fruit of this tree is not so tempting to us, as it was to the companions of Ulysses: the wood is durable, and used to make pipes for wind instruments: the root is proper for hafts of knives, and was highly esteemed by the Romans for its beauty and use.

Miller.

The trees around them all their food produce, *Lotos*, the name divine, nectareous juice.

Pope.

LOTHIAN, a name common to the three counties of Scotland, otherwise called Haddington, Edinburgh, and Linlithgow shires; or East, Mid, and West Lothian.

LOTHIAN, EAST, or Haddingtonshire, is bounded on the north-west by the Frith of Forth; on the east by the German Sea; on the south-east by Berwickshire; and on the west by the county of Edinburgh. It extends about twenty-five miles from east to west, and, where broadest, nearly fifteen from north to south. The coast, advancing northward into the Frith, forms an irregular curve. This is one of the most fruitful counties in Scotland, producing great quantities of wheat, and all sorts of grain; and being well watered, and plentifully supplied with fish, fowl, fuel, and all the necessaries of life. It is intersected by numerous streams, but the Tyne is the principal river, which falls into the German Ocean between Berwick and Dunbar. It abounds with towns, villages, and farms, interspersed with a great number of elegant houses belonging to persons of rank and fortune. For cultivation, populousness, and fertility, this shire may vie with any tract of land in Great Britain. The inhabitants on the sea-coast employ themselves in the fishery, salt-making, and foreign trade; and the more inland inhabitants in the linen and woollen manufactures. Great numbers of sheep are fed on the hills of Lannermuir. Prestonpans has a considerable manufacture of oil of vitriol, and sal-ammoniac. It abounds with excellent coal, free-stone, and lime-stone, and produces also some iron and lead.

LOTHIAN, MID, or Edinburghshire, is about thirty-five miles long, but varies in its breadth, in different places, from five to sixteen miles. It is bounded on the east by East Lothian; on the south by the county of Peebles; on the west by that of Linlithgow; and on the north by part of West Lothian and the Frith of Forth. The aspect of the country is in general level and pleasant, interspersed with a few hills. It is well watered with rivers, and shaded with woods; and produces coal and lime stone in abundance, a soft black marble, and some copper ore. The soil, naturally fertile, is finely cultivated, and yields as plentiful harvests of excellent wheat as are found in any part of North Britain. The whole county is interspersed with houses and plantations, belonging to noblemen and gentlemen of fortune; and the farmers are successful agriculturists. The land is generally occupied by tenants on leases for a term of years, excepting the comparatively small portion possessed by the pro-

prietors themselves, or let for the season in grass. Round Edinburgh the cultivation of farms is conducted with a view to the wants of that market; and potatoes, turnips, and clovers, are found more profitable than grain. The manure for raising them is amply supplied by the streets and stables of the city, which sells at 3s. a cubic yard, or more. The street soil, a few years ago, was let out to one individual, and brought the city a clear revenue of £2000 a year. The rent of farms, of from 50 to 100 acres, within a mile of the city, is in some instances so high as £8 or £10 an acre. Beyond this circle the system of cultivation is nearly the same as in the other Scottish counties. The extent of the natural wood has been estimated at 3000 acres, and of plantations about 14,000. The manufactures of the county, inclusive of those of the metropolis and Leith, are not considerable. Distilleries and paper-mills on the Esk, iron-works at Cramond, potteries and salt-pans at Inveresk, and gunpowder works at Temple, on the South Esk, are the principal. The communication between Edinburgh and Glasgow, by means of the Union Canal, promises to be of great utility to this county. The canal itself is five feet deep, and at the surface thirty-seven feet wide, contracting to twenty-two feet at the bottom. It begins at the Lothian Road, west of Edinburgh, and, crossing the Water of Leith at Slateford, passes the villages of Ratho, Broxburn, and Winchburgh, and the towns of Linlithgow and Falkirk, and joins the Forth and Clyde Canal at Lock No. 16, near the village of Camelon, after a course of thirty miles. The aqueducts are, one over the Water of Leith, at Slateford, 500 feet long and fifty feet high; and another of twelve arches of fifty feet span, over the river Avon, two miles above Linlithgow Bridge, 835 feet long, and ninety feet in height above the bed of the river.

The places worthy of note in this county (for it has no town beside Edinburgh of any consequence) are the villages of Mid-Caldor, Corstorphine, and Cramond, north-west; Pennicuik, Dalkeith, Laswade, Loanhead, and Gilmerton, east and south; and Musselburgh (sometimes called the Montpelier of Scotland), including the villages of Inveresk and Fishrow, Portobello and Newhaven, on the Frith of Forth. Portobello is a pleasant bathing village, lately built. Hot and cold baths have been constructed upon an elegant plan. Dalkeith, the most populous of these places, is distinguished for its great weekly grain market.

LOTHIAN, WEST, or Linlithgowshire, is bounded on the north by the Frith of Forth; by the Almond, which divides it from Mid-Lothian, on the east. On the south-west it joins the county of Lanark; and on the west it is separated from Stirlingshire by the Avon. Its form, though irregular, approaches to a parallelogram. It measures from north-east to south-west nearly twenty miles. Its breadth, except on the shore of the Frith, does not exceed twelve: its contents are taken at 112 square miles, or 51,006 acres. The country is pleasant and fertile, abounding in corn and pasturage: in the reign of James VI. it had a rich silver mine. Linlithgow contains two royal burghs, viz. Linlithgow and Queensferry; and

the towns of Borrowstounness, Whitburn, Bathgate, and Kirklistoun. It is divided into thirteen parochial districts. The shire is but scantily supplied with running water, the Avon and Almond being the only streams which deserve notice. It abounds, however, with mineral riches, particularly coal, limestone, and lead ore. Ironstone is found in almost every parish; and wrought to a great extent in that of Bathgate. The chief articles of commerce are lime, freestone, salt, and coal. There are volcanic appearances in many places, especially in Dundas Hill, in Dalmeny, where there is a bold front of basaltic rocks, and various regular basaltic columns.

LOTION, *n. s.* Fr. *lotion*; Lat. *lotio*. A medicinal wash.

A *lotion* is a form of medicine compounded of aqueous liquids, used to wash any part with.

Quincy.

In *lotions* in women's cases, he orders two portions of hellebore macerated in two cottle of water.

Arbutnot on Coins.

A **LOTION** is, strictly speaking, such a washing as beautifies the skin, by cleansing it of those deformities which a distempered blood throws upon it. Medicines of this kind, however, are for the most part insignificant, and sometimes very dangerous; the only proper method of treating these disorders is, by administering such medicines as tend to correct that morbid state of the constitution whence they arise.

LOTOPHAGI, in ancient geography, a people of the Regio Syrtica, so called from their living on the lotus; inhabiting between the two Syrtes, from the Cinyphus to the Triton. The lotus was said to be a food so luscious, as to make strangers forget their native country. A sweet wine, according to Pliny, was expressed from it, which did not keep above ten days. See **MENINX**.

The **LOTTERY**, or the **STATE LOTTERY**, a kind of public game at hazard, formerly frequent in Britain, as well as France and Holland; to raise money for the service of the state. It was appointed with us by the authority of parliament, and managed by commissioners appointed by the lords of the treasury for that purpose. It consisted of great numbers of blanks and prizes, which were drawn out of wheels, one of which contained the numbers, and the other the corresponding blanks or prizes. The Romans invented lotteries to enliven their Saturnalia. This festival began by the distribution of tickets which gained some prize. Augustus made lotteries which consisted of things of little value; but Nero established some for the people, in which 1000 tickets were distributed daily, and several of those who were favored by fortune, got rich by them. Heliogabalus invented some very singular lotteries; the prizes were either of great value, or of none at all; one gained a prize of six slaves, and another of six flies; some got valuable vases, and others vases of common earth. A lottery of this kind exhibited an excellent picture of the inequality with which Fortune distributes her favors. The first English lottery we find mentioned in history was drawn A. D. 1569. It consisted of 400,000 lots, at 10s. each lot: the prizes were plate; and the profits were

to go towards repairing the havens of this kingdom. It was drawn at the west door of St. Paul's cathedral. The drawing began on the 11th of January 1569, and continued incessantly drawing, day and night, till the 6th of May following; as Maitland informs us in his History vol. i. p. 257. There were then only three lottery offices in London. The proposals for this lottery were published in 1567 and 1568. It was first intended to have been drawn at the house of Mr. Dericke, her majesty's servant (i. e. her jeweller), but was afterwards drawn as above mentioned. Dr. Rawlinson showed the Antiquarian Society, in 1748, one of the original proposals for this state lottery, printed by Henry Bynneyman, in 1568. In 1612 king James, in favor of the plantation of English colonies in Virginia, granted a lottery, to be held at the west end of St. Paul's; whereof one Thomas Sharplys, a taylor of London, had the chief prize, which was 4000 crowns in plate.

In the reign of queen Anne it was thought necessary to suppress lotteries, as nuisances to the public. After that time, however, they were again licensed by an act of parliament, under various regulations. The act passed in 1778 restrains any person from keeping an office for the sale of tickets, shares, or chances, or for buying, selling, insuring, or registering, without a license; for which licence each office keeper must pay £50, to continue in force for one year, and the produce to be applied towards defraying the expenses of the lottery. And no person is allowed to sell any share or chance less than a sixteenth, on the penalty of £50. All tickets divided into shares or chances are to be deposited in an office, to be established in London by the commissioners of the treasury, who are to appoint a person to conduct the business thereof; and all shares are to be stamped by the said officer, who is to give a receipt for every ticket deposited with him. The numbers of all tickets so deposited are to be entered in a book with the names of the owners, and the numbers of shares into which they are divided; and 2d. for each share is to be paid to the officer on depositing such tickets, who is therewith to pay all expenses incident to the office. All tickets deposited in the office are to remain there three days after the drawing. And any person keeping an office, or selling shares, or who shall publish any scheme for receiving moneys in consideration of any interest to be granted in any ticket in the said lottery, &c., without being in possession of such ticket, shall forfeit £500 and suffer three months' imprisonment. And no business is to be transacted at any of the offices after eight in the evening, except on the evening of the Saturday preceding the drawing. No person is to keep any office for the sale of tickets, &c., in Oxford or Cambridge, on penalty of £20. Within these few years, however, the immoral tendency of this species of state gambling has been so strongly urged upon the ministers that in 1824 they thought proper to abandon it, and lotteries are now therefore discontinued.

LOTUS, or bird's foot trefoil, in botany, a genus of the decandria order, and diadelphia class of plants; natural order thirty-second, papilionaceæ: legume cylindrical and very erect:

the alæ closing upwards longitudinally: CAL. tubulated. There are many species, but only six are usually cultivated in our gardens; viz.

L. Creticus, the Cretan silvery lotus, with slender under shrubby stalk, rising by support three or four feet high, ornamented with trifoliate, bright, silvery leaves; and branches terminated by several yellow flowers succeeded by subternate pods.

L. dorcynium, white Austrian lotus, or shrub trefoil of Montpellier, has under shrubby smooth stalks, branching three or four feet high, and the branches terminated by aphyllous heads of small white flowers, appearing in June, succeeded by small pods.

L. edulis, sends forth several trailing stalks about a foot long, furnished at their joints with trifoliate, roundish, smooth leaves, having oval stipulæ. The flowers come singly from the sides of the stalks, on long peduncles, with three oval floral leaves, the length of the flower: the latter is small, yellow; and is succeeded by a thick arched pod, having a deep furrow on its outside. This species is an annual, and a native of Italy, where the pods are eaten, like kidney beans.

L. hirsutus, the hairy Italian lotus, has upright hairy stalks branching a yard high; and terminated by heads of whitish hoary-cupped flowers appearing in June, and succeeded by oval pods full of seed, which ripen in autumn.

L. Jacobæus, the lotus of St. James's Island, with upright herbaceous stalks, branching two or three feet high; and, from the upper part of the branches, long slender foot-stalks, terminated each by three or five yellowish purple flowers, and succeeded by subternate pods filled with plenty of seeds. These five species may be propagated either by seeds or cuttings, but require to be kept in pots in the green-house during winter.

L. tetragonolobus, or the winged pea, has trailing, slender, branchy stalks, about a foot long, garnished with trifoliate oval leaves; and, from the axillæ of the branches, large, papilionaceous red flowers, one on each foot-stalk; succeeded by tetragonous solitary pods, having a membranous wing or lobe running longitudinally at each corner. It flowers in June and July, and they ripen in autumn. It is a hardy annual, and is easily raised from seed sown between February and May; requiring only to be kept from weeds. It was formerly cultivated here as an esculent; for its young green seed-pods may be dressed and eaten like peas, or kidney beans; and are used so still in the north of England.

Lotus, the lote tree. See **CELTIS**.

Lotus, in mythology, a name generally appropriated to the Egyptian nymphæa lotus, but also applied to the *κυαμος* or sacred bean of India, to some African tree on which certain people have chiefly depended for their support, and also to several herbaceous plants essential to the maintenance of domestic cattle in countries sparingly furnished with grass. The origin of this word has been much disputed. Those who have sought for its etymology in the Greek language, have derived it from *λω*, to *will* or *desire*, alluding to its being greatly esteemed.

Others have thought that both the *λωτος* of the Greeks and the lotus of the Latins had one common Egyptian origin inscrutable to us.

This plant is thus noticed by Herodotus. 'When the river Nile is become full, and all the grounds round it are a perfect sea, there grow a vast quantity of lilies, which the Egyptians call lotus, in the water. After they have cut them, they dry them in the sun; then having parched the seed within the lotus, which is most like the poppy, they make bread of it, baking it with fire. The root also of the lotus is eatable, easily becoming sweet, being round, and of the size of an apple.' M. Savary mentions it as growing in the rivulets and on the sides of the lakes; and there are two sorts or varieties of the plant, the one with a white, the other with a bluish flower. 'The calyx,' he says, 'blows like a large tulip, and diffuses a sweet smell, resembling that of the lily. The first sort produces a round root like that of a potatoe; and the inhabitants of the banks of the lake Menzel feed upon it. The rivulets in the environs of Damietta are covered with this majestic flower, which rises upwards of two feet above the water.'

It is not improbable that this flower became sacred to superstitious veneration, in that country, in consequence of its resemblance to the East India lotus, a kind of bean. The latter, from the mode of its vegetation, was adopted, in the most remote ages, to serve as an emblem of fertility; but the nymphæa lotus exhibits nothing which could originally have excited such an idea. It seems therefore a sort of substitute or type; and perhaps strengthens the theory of the mythology of Egypt having migrated thither from India. Among the Brahmins, and enthusiastic Hindoos, no object in nature is looked on with more superstition than the lotus; and their books abound with mystical allusions to this lovely aquatic. In the northern parts of India the petals of the lotus are blue, as well as red and white; while in the southern provinces the blue flower is not seen: the poets have hence feigned that the crimson hue was imparted to it by the blood of Siva issuing from the wound made by the arrow of Kama, when the god of love daringly endeavoured to inspire the 'king of dread' with an amorous passion, for which presumption he was reduced to ashes, or, as some say, to a mental essence, by the fire which issued from the forehead of the 'three-eyed god.' The following extract from the curious and learned dissertation of major Wilford, On the sacred Isles of the West, will serve to show the wild extravagance of Hindoo mythologists: 'The nymphæa, or lotus, floating on the water, is an emblem of the world; the whole plant signifies both the earth and its two principles of fecundation. The stalk originates from the navel of Vishnu, sleeping at the bottom of the ocean; and the flower is the cradle of Brama, or mankind. The germ is both Meru and the Linga; the petals and filaments are the mountains which encircle Meru, and are also the type of the Yoni.' (Asiatic Researches, vol. viii.)

Lotus *GLYCICALAMUS*, a name given by the ancient Greeks to an Egyptian plant according to some, and, according to others, to a rare plant, found only occasionally. The whole account

given of it, by the earliest writers, is no more than that it was of a very sweet and pleasant taste. Myrepsus uses the term frequently, and his interpreters understand him to mean the cassia fistula by it. But Homer asserts that the followers of Ulysses were detained by eating the lotus glycycalemus; and it is not at all probable that the cassia fistula could be the thing meant by the word in this place. The cassia fistula is the fruit of a tree: but this glycycalemus, we find in Homer himself, was an herbaceous plant. Quintilian calls it expressly a kind of grass, gramin; and from the other accounts of its growing in the form of reeds, and in wet places, it seems probable that it was the sugar-cane that they called by this name. See DIOSPYROS.

LOUD, *adj.* } Sax. *lud*; Goth. *lud*, of
LOUD'LY, *adv.* } Goth. *hlyda*, to hear; Swed.
LOUD'NESS, *n. s.* } *liud*; Tent. *laut*. Sound-
ing; remarkable for force or vehemence of
sound; noisy; clamorous: the adverb and
substantive corresponding.

She is *loud* and stubborn; her feet abide not in her house.

The soldier that philosopher well blamed.

Who long and *loudly* in the schools declaimed.

Children may be frightened into compliance by *loud* and severe imprecations, but men are to be allured by rational persuasion backed with courteous usage.

Had any disaster made room for grief, it would have moved according to prudence, and the proportions of the provocations: it would not have sallied out into complaint or *loudness*.

The numbers soft and clear,

Gently steal upon the ear;

Now *louder*, and yet *louder* rise,

And fill with spreading sounds the skies. *Id.*

I read above fifty pamphlets, written by as many presbyterian divines, *loudly* disclaiming toleration.

Sir, when I flew to seize the bird

In spite of your command,

A *louder* voice than yours I heard,

And harder to withstand.

Like a scarce awakened ocean,

Then with stronger shock and *louder*.

Till the rocks are crushed to powder. *Byron.*

LOVE, *v. a. & n. s.*

LOVE'HOOD, *n. s.*

LOVE'LETTER, *n. s.*

LOVE'LILY, *adv.*

LOVE'LINESS, *n. s.*

LOVE'LORN, *adj.*

LOVE'LY,

LOVE'MONGER, *n. s.*

LOVE'R,

LOVE'SEEMLY,

LOVE'SICK, *adj.*

LOVE'SOME,

LOVE'SONG, *n. s.*

LOVE'SUIT,

LOVE'TALE,

LOVE'THOUGHTS,

LOVE'TOY,

LOVE'TRICK,

LOV'ING, *part. adj.*

LOV'INGKIND'NESS, *n. s.*

LOV'INGLY, *adv.*

LOV'INGNESS, *n. s.*

Sax. *lufa*, *lufian*;

Goth. *love*, *liub*;

Belg. *lief*; Swed.

luif; Teuton. *leebe*.

The affection be-

tween the sexes;

courtship; tender-

ness; liking or af-

fection of any kind;

good will; friend-

ship; an endearing

compellation; an

object beloved; a

picturesque repre-

sentation of love:

as a verb it signi-

fies to regard with

sexual passion or

affection; regard or

be pleased with in

a general sense, and

in varying degrees

of attachment, esteem, or reverence, according to the object. *Lovely* means amiable; exciting love; beautiful. *Lovesome* is used in the same sense by Dryden. *Loving* is fond; kind; affectionate. *Lovingkindness*, favor; tenderness; mercy: applied particularly to that of the Divine Being. The other compounds are sufficiently explained by the extracts.

This is my commandment, that *ghe loue togidre* as I *lowyde* ghout: no man hath more *loue* than this that a man putte his lyf for hise frendis.

Wiclif, Jon xv.

Love the Lord thy God with all thine heart.

Deut. vi. 5.

Saul and Jonathan were *lovely* and pleasant in their lives, and in their death they were not divided.

2 Samuel.

Remember, O Lord, thy tender mercies, and thy *lovingkindnesses*.

Psaln xxv. 6.

God brought Daniel into favour and tender *love* with the prince.

Daniel i. 9.

The king took her in his arms till she came to herself, and comforted her with *loving* words.

Esther xv. 8.

Shall I come unto you with a rod, or in *love*, and in the spirit of meekness?

1 Cor. iv. 21.

The one preach Christ of contention, but the other of *love*.

Phil. i. 17.

Great pity was it, as it thought hem alle,

That ever swiche a chance shulde befall,

For gentilmen they wer of grit estat,

And nothing but for *love* was this debat.

Chaucer. Cant. Tales.

Hearken to the birds *love*-learned song,

The dewie leaves among! *Spenser's Epithalamium*

Good shepherd, tell this youth what 'tis to *love*.

—It is to be made all of sighs and tears;

It is to be made all of faith and service;

It is to be all made of fantasy,

All made of passion, and all made of wishes,

Al! adoration, duty, and obedience;

*All humbleness, all patience, all impatience,

All purity, all trial, all observance. *Shakespeare.*

Demetrius

Made *love* to Nedar's daughter Helena,

And won her soul. *Id. Mids. Night's Dream*

If you will marry, make your *loves* to me,

My lady is bespoken. *Id. King Lear*

He is not lolling on a lewd *love* bed,

But on his knees at meditation. *Shakespeare.*

Come, *love* and health to all!

Then I'll sit down: give me some wine; fill full. *Id.*

Lovers say, the heart hath treble wrong,

When it is barred the aidance of the tongue. *Id.*

Have I escaped *loveletters* in the holyday time of

my beauty, and am I now a subject for them? *Id.*

The breast of Hecuba,

When she did suckle Hector, looked not *lovelier*

Than Hector's fore head. *Id. Coriolanus.*

Thou art an old *lovesmonger*, and *speakest* skilfully.

Shakespeare.

Poor Romeo is already dead!

Stabbed with a white wench's black eye,

Run through the ear with a *lovesong*. *Id.*

His *lovesuit* hath been to me

As fearful as a siege. *Id. Cymbeline.*

Away to sweet beds of flowers,

Love thoughts lie rich when canopied with bowers.

Shakespeare.

So *loving* to my mother,

That he would not let even the winds of heaven

Visit her face too roughly. *Id. Hamlet.*

Fish used to salt water delight more in fresh ; we see that salmon and smelts *love* to get into rivers, though against the stream.

Bacon's Natural History.

The enquiry of truth, which is the *love*-making or wooing of it ; the knowledge of truth, the preference of it ; and the belief of truth, the enjoying of it, is the sovereign good of human nature. *Bacon.*

This earl was of great courage, and much *loved* of his soldiers, to whom he was no less *loving* again.

Hayward.

*Love*song weeds and satyrick thorns are grown,
Where seeds of better arts were early sown. *Donne.*

Other disports than dancing jollities ;

Other *lovetricks* than glancing with the eyes. *Id.*

A *love-sick* brain adores, in romantic strains, the *lovely* idol of his heart, or sighs in real misery at her fancied frowns. *Burton.*

All earthly *love* supposeth some kind of equality, or proportion at least, betwixt the person that *loves*, and is *loved*. *Bp. Hall.*

The good wife is none of our dainty dames, who *love* to appear in a variety of suits every day new ; as if a good gown, like a stratagem in warre, were to be used but once. *Fuller.*

I could not *love*, I'm sure,

One who in *love* were wise. *Cowley.*

Wit, eloquence, and poetry,

Arts which I *loved*. *Id.*

The *love* to sin makes a man sin against his own reason. *Taylor.*

The *love* of God makes a man chaste without the laborious arts of fasting, and exterior disciplines ; he reaches at glory without any other arms but those of *love*. *Id.*

It is no great matter to live *lovingly* with good-natured and meek persons ; but he that can do so with the froward and perverse, he only hath true charity. *Id.*

Love is of two sorts, of friendship and of desire ; the one betwixt friends, the other betwixt lovers ; the one a rational, the other a sensitive *love* : so our *love* of God consists of two parts, an esteeming of God, and desiring of him. *Hammond.*

The flowers which it had pressed

Appeared to my view,

More fresh and *lovely* than the rest,

That in the meadows grew. *Denham.*

What need a vermil-tinctured lip for that
Love-darting eyes, or tresses like the morn ?

Milton.

Love-quarrels oft in pleasing concord end,

Not wedlock treachery, endangering life. *Id.*

When I approached

Her *loveliness*, so absolute she seems,

That what she wills to do, or say,

Seems wisest, virtuousest, discreetest, best. *Id.*

The *love-lorn* nightingale

Nightly to thee her sad song mourneth well. *Id.*

The *lovetale*

Infected Sion's daughters with like heat ;

Whose wanton passions in the sacred porch

Ezekiel saw. *Id. Paradise Lost.*

True *love* is nothing else but goodness exerting itself, in direction toward objects capable of its influence. *Barrow.*

Carrying thus in one person the only two bands of good-will, *loveliness* and *lovingness*. *Sidney.*

The new king, having no less *lovingly* performed all duties to him dead than alive, pursued on the siege of his unnatural brother, as much for the revenge of his father, as for the establishing of his own quiet. *Id.*

Thou lookest

Lovely dreadful. *Otway's Venice Preserved.*

This leaf held near the eye, and obverted to the light, appeared so full of pores, with such a transparency as that of a sieve, a piece of cypress, or *love-hood*. *Boyle on Colours.*

No religion that ever was, so fully represents the goodness of God, and his tender *love* to mankind, which is the most powerful argument to the *love* of God. *Tillotson.*

The Christian religion gives us a more *lovely* character of God than any religion ever did. *Id.*

You know y' are in my power by making *love*. *Dryden.*

The banished never hopes his *love* to see. *Id.*

The *lovely* babe was born with every grace ;

Such was his form, as painters, when they show

Their utmost art, on naked *loves* bestow. *Id.*

'Tis no dishonour, trust me, *love*, 'tis none ;

I would die for thee. *Id. Don Sebastian.*

Let it be never said, that he whose breast

Is filled with *love*, should break a *lover's* rest. *Dryden.*

What danger, Armant, is this your fear ?

Or what *lovesecret* which I must not hear ? *Id.*

To the dear mistress of my *lovesick* mind,

Her swain a pretty present has designed. *Id.*

Nothing new can spring

Without thy warmth, without thy influence bear,

Or beautiful or *lovesome* can appear. *Id.*

Men in *love* with their opinions may not only suppose what is in question, but allege wrong matter of fact. *Locke.*

To be good and gracious, and a *lover* of knowledge, are suitable things.

Burnet's Theory of the Earth.

Love is the great instrument of nature, the bond and cement of society, the spirit and spring of the universe : *love* is such an affection as cannot so properly be said to be in the soul, as the soul to be in that : it is the whole man wrapt up into one desire. *South.*

The jealous man wishes himself a kind of deity to the person he *loves* ; he would be the only employment of her thoughts. *Addison.*

The children are educated in the different notions of their parents ; the sons follow the father, while the daughters read *lovetletters* and romances to their mother. *Id. Spectator.*

If there is such a native *loveliness* in the sex, as to make them victorious when in the wrong, how irresistible is their power when they are on the side of truth. *Id.*

Cato's a proper person to entrust

A *lovetale* with. *Id.*

The fair

With cleanly powder dry their hair ;

And round their *lovely* breast and head

Fresh flowers their mingled odours shed. *Prior.*

A *love* potion works more by the strength of charm than nature. *Collier on Popularity.*

He has adapted the arguments of obedience to the imperfection of our understanding, requiring us to consider him only under the amiable attributes of goodness and *lovingkindness*, and to adore him as our friend and patron. *Rogers.*

In youth, of patrimonial wealth possess,

The *love* of science faintly warmed his breast. *Fenton.*

Now I behold the steed curvet and bound,

And paw with restless hoof the smoking ground,

The dew lapped bull now chafes along the plain,

While burning *love* ferments in every vein. *Gay.*

Has this amorous gentleman presented himself

with any *lovetoy*s, such as gold snuff-boxes ?

Arbuthnot and Pope.

Let mutual joys our mutual trust combine,
And *love*, and *love-born* confidence be thine.

Pope.

The *lover* and the *love* of human kind.

Id.

Sae wistfully she gazed on me,

And *lovelier* was than ever:

Quo' she, a sodger ance I *lov'd*,

Forget him shall I never.

Burns.

What is life when wanting *love*?

Night without a morning:

Love's the cloudless summer sun,

Nature gay adorning.

Id.

That *love* of praise can never be criminal, that excites and enables a man to do a great deal more good than he could do without it.

Mason.

Love is not pedlar's trumpery bought and sold:

He will give freely, or he will withhold;

His soul abhors a mercenary thought,

And him as deeply who abhors it not.

Cowper.

Prospects, however *lovely*, may be seen

Till half their beauties fade.

Id.

Oh! ever *loving*, *lovely*, and beloved;

How selfish sorrow ponders on the past,

And clings to thoughts now better far removed!

But Time shall tear thy shadow from me last.

Byron.

Thou *lovedst* me

Too much, as I *loved* thee: we were not made

To torture thus each other, though it were

The deadliest sin to *love* as we have *loved*.

Id.

Here is a *loveliness* in death,

That parts not quite with parting breath:

But beauty with that fearful bloom,

That hue which haunts it to the tomb;

Expression's last receding ray,

A gilded halo hovering round decay,

The farewell beam of feeling past away!

Id.

LOUGH, *n. s.* Sax. *luh*, *lagu*; Goth. *laug*; Teut. *luch*; Irish *loch*. A lake or body of standing water.

A people near the northern pole that won,
Whom Ireland sent from *loughs* and forests hore,
Divided far by sea from Europe's shore.

Fairfax.

Lough Ness never freezes.

Philosophical Transactions.

LOUGHBOROUGH, a market town of Leicestershire, the second in the county. In the time of the Saxons it was a royal village. The chief manufactures are stockings, and cotton-spinning. The district of Charnwood Forest, westward of the town, extends ten miles in length, and six in breadth. It is full of hills, woods, and rocks, and was disforested by Henry III. Its market is on Thursday; and its fairs are on April 25th, May 28th, August 1st, and November 2d. It has a large church, a free school, and two charity schools for eighty boys, and twenty girls. It has been much reduced by fires; but is still a very agreeable town, and is seated on the Fosse, which runs almost parallel with the Soar. The new canal has made its coal trade very extensive. It is eleven miles north of Leicester, and 109 north-west by west of London.

LOUGH FARNE. See FARNE.

LOUGH NEAGH. See NEAGH.

LOUGH STRANGFORD. See STRANGFORD.

LOUIS, or LEWIS, the name of eighteen kings of France. See FRANCE. Of these we shall here only take notice of the following:—

LOUIS VII., A. D. 1137, was the first who had the courage to oppose the encroachments of the popes on the regal authority: pope Innocent II.

excommunicated him for appointing an archbishop of Bourges; but Louis defended his prerogatives, and put the priests to death who had been the authors of the quarrel. In 1147 he marched with an army of 80,000 men against the Saracens, but was defeated; and, returning by sea, was taken by the Greeks, but rescued by Roger king of Sicily. He died in 1180, aged sixty.

LOUIS IX., or St. LOUIS, one of the greatest monarchs of France; equally memorable for his valor and his virtues, but unfortunately, misled by the superstition of the times, he sacrificed his own repose, and the welfare of his kingdom, to the folly of crusading. He succeeded his father in 1226. In 1248, leaving France to the care of his mother, he embarked for Egypt, attended by his queen, his three brothers, and the flower of the French nobility. At first his victories were rapid; he took Damietta in 1249; but in 1250 was defeated and taken prisoner by the Turks, with all his nobles, and the greatest part of his army. The sultan demanded an exorbitant sum for his ransom, and his answer deserves to be recorded: 'Tell the sultan, that a king of France is not to be ransomed with money; I will give the sum required for my people, and Damietta for myself.' These terms were accepted, and a peace of ten years ensued. Upon his return to France, he diminished the taxes, revoked those which the financiers had introduced; issued several salutary edicts; founded several churches and hospitals; and effectually overturned the ecclesiastical jurisdiction of the court of Rome, by his Pragmatic sanction in 1269, which established the independency of the Gallican church. Thirteen years residence in his capital indemnified his subjects for his absence; but his pious zeal prevented the enjoyment of this happiness: he embarked for the sixth crusade in 1270; and died the same year, at the siege of Tunis, aged fifty-five. See FRANCE.

LOUIS XII. A. D. 1492, styled the Just, and the father of his people, is memorable for his valor in the field, and his wisdom in the cabinet. He was undoubtedly a great general, though unfortunate towards the end of his reign, when he did not command his troops in person: his orders transmitted from home were misunderstood, or wilfully disobeyed; and he had the mortification, before he died, to see the total expulsion of the French from the possessions he had acquired for them by his personal bravery. At fifty-three years of age he married the princess Mary of England, sister of Henry VIII. and died about two months after his nuptials, in 1515.

LOUIS XIII., A. D. 1610, increased the military reputation of his country, and made considerable additions to its domains. The beginning of his reign was occupied in civil wars with his mother and his protestant subjects; which he was excited to continue by his celebrated minister cardinal Richelieu, who attended him to the siege of Rochelle, the bulwark of the Hugonot party; which surrendered in 1628, after a siege of more than a year. Upon this and other occasions the king gave proofs of great personal bravery. His attachment to his ally the duke de

Nevers, who succeeded to the duchy of Mantua, but was refused the investiture by Charles VI. emperor of Germany, involved him in a war with that prince, the Spaniards, and the duke of Savoy; in which Louis was victorious; and obtained a treaty of peace, by which the duke of Mantua was guaranteed in the possession of his dominions. In 1635 a new war broke out between France and Spain, and the emperor took part with the latter: it lasted thirteen years against the emperor, and twenty-five against Spain, with various success; and the military experience acquired by the different armies in the Low Countries, on the frontiers of France, and in Italy, paved the way for the successes of Louis XIV. Louis XIII. died in 1643, aged forty-one.

Louis XIV., falsely styled the Great, became king at five years of age, in 1643. He was at first styled Dieu-donne, the French considering him as the gift of heaven, granted to their prayers after the queen had been barren twenty-two years. This princess (Anne of Austria) was declared regent by Louis XIII., and saw herself under necessity of continuing the war against Philip IV. king of Spain, her brother. The duke d'Enghien was made general of the French armies; and so signal was the success of this renowned warrior (afterwards prince of Condé), that his victories brought on the advantageous treaty of Munster in 1648, between France, the emperor Ferdinand III. and Christina queen of Sweden: the basis of the aggrandisement of France in this reign, the principal events of which, and of the next, will be found related under the articles GREAT BRITAIN, FRANCE, &c. Louis XIV. died in 1715, aged seventy-seven.

Louis XV., great-grandson of the preceding, succeeded in 1715. He was styled, in the course of his reign, the well beloved, which he lost some years before he died, and was detested and despised by his subjects for his shameful attachment to Madame Pompadour, the wife of M. D'Etoiles, who, by the ministry of her patron the duke d'Aiguillon, governed the kingdom, and invaded the rights of the people. He died in 1774, in the sixty-fourth year of his age, and fifty-ninth of his reign.

Louis XVI., one of the most unfortunate, and yet one of the most deserving of the French monarchs of the race of Capet, and house of Bourbon, succeeded his grandfather in 1774. The principal events of this reign are related under the article FRANCE. His character is universally allowed to have been such as, in times of less disturbance, would have insured him a high degree of popularity to the end of his life. He was naturally of a mild and humane disposition; and had the merit of having been the first who instituted a society for the instruction and employment of the blind; an example of benevolence which has been since successfully followed in this and other countries. He was also an author, and translated 5 vols. of Gibbon's History, and Walpole's Historical Doubts, into French. His last will and testament, written by himself, exhibits a strong picture of his piety, resignation, and affection for his relations. At his trial he showed an uncommon degree of spirit, recol-

lection, and undaunted fortitude. On the 21st of January, 1793, this unfortunate monarch fell by the guillotine, a sacrifice to that democratic jealousy,—that popular fury,—which only exhausted its rage by destroying many of the greatest men in France.

Louis XVIII. (Stanislaus Xavier de France), second son of the dauphin, the son of Louis XV., and brother of the unfortunate Louis XVI., was born at Versailles, November 17th, 1755. He is said as a boy to have manifested a timid and reserved disposition, united with a more decided turn for literary pursuits than either of his brothers. On the accession of his elder brother to the throne, he presented him with a pamphlet of his own writing, entitled *Mes Pensées*; which appears to have given but little satisfaction to that prince. The count de Provence, as Louis was then styled, fled from Paris to Coblenz, on the 20th of June 1791, and took a principal share in the organisation of the emigration. The progress of the revolution afterwards compelled him to retire to Turin, and subsequently to Verona, under the name of the count de Lille, a title which he long retained. In 1796 he joined the army of Condé, then at Reigal, and two years afterwards was acknowledged as king of France by the emperor Paul of Russia, at whose invitation he took up his residence in the ducal castle of Mittau in Courland. Soon however he received orders to quit the Russian territories in a week, and took refuge at Warsaw, whence the king of Prussia finally compelled him to retire, as a last resource, to England. Here he was hospitably received and provided for at Hartwell, a seat belonging to the marquiss of Buckingham, where he remained till the fall of Napoleon in 1814; when he was publicly received in London as king of France. Again driven from his throne, by the return of Buonaparte from Elba, he retired into the Netherlands, till the battle of Waterloo. He survived this second elevation nine years, and died in his sixty-ninth year, on the 16th of September, 1824. For a considerable time previously, a dry erysipelas in his legs had deprived him of the power of walking, and, together with a natural tendency to corpulency, produced a paralysis of the lower extremities which became the immediate cause of his dissolution. This prince acted with great temper and policy on his second return to France, when it required no small skill to render the intrusion of the foreign armies palatable to the people. Besides the pamphlet already mentioned, he was the author of *Le Mariage Secret*, a comedy in three acts, in which he is reported to have been assisted by his secretary Ducis, the imitator of Shakspeare. Two operas also were the offspring of his pen, Panurge, and the Caravane du Caire, to which Gretry composed the music. His other writings are an account of his journey to Coblenz, and a few political articles in the *Journal de Paris*, during the year 1814.

Louis (St.), a city of Brasil, South America, the chief town of the island of Maranham. It is the see of a bishop, and built upon very unequal ground, extending from the water's edge, to the distance of about a mile and a half. It comprises some broad streets and squares, but is

a very straggling place. This, however, gives it an airy appearance in so warm a climate; the streets are mostly paved, and the houses are many of them neat, but in the smaller streets the windows are not glazed. The churches are numerous, and gaudily decorated; there are also Carmelite and Franciscan convents. The governor's palace stands upon rising ground, fronting the town, and is a long stone building, like most of the rest, of one story only in height. The western end joins the town-hall and prison, and the oblong piece of ground in its front, covered with grass, gives to it on the whole a handsome and striking appearance. There is a fort in the adjoining hollow close to the water; the other extremity is nearly closed by the cathedral. The ground upon which the whole place stands is said to be composed of a soft red stone. This city also contains a custom-house and treasury. The harbour is formed by a creek in the island, and entered from the bay of St. Marcos. The channel is narrow but of sufficient depth for common sized merchant ships. Population, including negroes, about 12,000. Long. $43^{\circ} 37' W.$, lat. $2^{\circ} 30' S.$

LOUIS (St.), a lake of North America, twelve miles long, by six broad; formed at the junction of the Ottawa with the St. Lawrence.

LOUIS (St.), a river of North America, navigable 150 miles, which has its source near the head waters of the Mississippi, and falls into Lake Superior, on the west shore. Long. $91^{\circ} 52' W.$, lat. $46^{\circ} 44' N.$

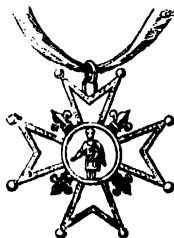
LOUIS (St.), a river of Lower Canada, which falls into the St. Lawrence, where its waters form Lake St. Louis.

LOUIS D'OR, a French coin first struck in the reign of Louis XIII. in 1640, but laid aside at the revolution. Its original value was twenty-four francs, 20s. English. A new Louis d'or of twenty francs is now current, and its value, at par, is 16s. 8d. English.

LOUIS, FORT, a barrier fortress in the north-east of France, in Alsace. It is situated on the island of Giessenheim, on the Rhine, and was constructed by the famous Vauban. In November 1793 it was taken by the Austrians, who blew up the works: but the French soon after restored them. Twelve miles east of Haguenau.

LOUIS, FORT, a French settlement near the mouth of the Coza in Florida, sixty miles north-east of the mouth of the Mississippi. It was the residence of the governor of Louisiana, till the peace in 1673.

LOUIS, KNIGHTS OF ST., a military order in France, instituted by Louis XIV. in 1693. The annexed diagram represents the cross of this order; the king was their grand master; and there were in it eight great crosses, and twenty-four commanders; the number of knights was not limited. At their institution, the king charged his revenue with a fund of 300,000 livres for the pensions of the commanders and knights.



LOUISA, a county in the centre of Virginia, North America, bounded north by Orange and Spotsylvania counties, east by Hanover county, south by Goochland and Fluvanna counties, and west by Albemarle county: 116 miles from Washington.

LOUISA, LOANGO, a large river of Loango, in Western Africa, which falls into the Atlantic, in lat. $5^{\circ} 30' S.$ Captain Tuckey found only one river here bearing this name, though two have been generally laid down in the maps.

LOUISBURG, the capital of Cape Breton, is situated on a point of land on the south-east side of that island. Its streets consist for the most part of stone houses, regularly built, with a large parade at a little distance from the citadel; the inside of which is a fine square, whose sides measure 200 feet. The town is about half an English mile in length, and two in circuit. It has an excellent harbour, four leagues deep, and fit for the largest fleets, but it is closed by ice from November to May. The entrance is but 400 yards wide, between two islands, one of which is fortified, and its fires cross with those of batteries on the main. In the north-east part is a fine careening wharf to heave down; and very secure from all winds. On the opposite side are fishing stages, for 2000 boats to cure fish. Sometimes the frosts set in soon, and are more intense; as particularly in 1745, when by the middle of October a great part of the harbour was frozen.

The principal trade here is the cod fishery, which may in general be continued from April to the end of the year. Louisburg was taken from the French by the English under Sir Peter Warren and our American forces, commanded by Sir William Pepperel, in the year 1745; but afterwards restored to France by the treaty of Aix-la-Chapelle. It was retaken by the English, under admiral Boscawen and lieutenant-general Amherst, on the 27th of July 1758, and its fortifications demolished. Long. $59^{\circ} 50' W.$, lat. $45^{\circ} 55' N.$

LOUISIADE, an archipelago of islands in the Eastern Seas, lying to the south-east of New Guinea, and about 400 miles in length, by 160 in extreme breadth. The centre of them is nearly under 10° of S. lat. and $152^{\circ} 25'$ E. long. They are interspersed with dangerous shoals and reefs, the principal of which received names from the French in 1793, in the voyage in quest of La Perouse. Some of the islands are fertile and populous, the inhabitants being of a deep copper color, with woolly hair; and wearing a cord wound several times round their middle. Many smear their faces with charcoal, and use personal ornaments. They are fond of war, and fight with slings, darts, tomahawks, and a large wooden shield. There seems reason to conclude that they are cannibals; and the French found them of a perfidious disposition; their canoes have both outriggers and sails. Their huts stand six or eight feet from the ground on posts; one of their canoes was thought by the navigators who visited them to be fifty feet long. They appear to set little value on iron. None of the islands composing this archipelago exceed thirty-five miles in length.

LOUISIANA, a country ceded to the United States of America by France in 1803, for 15,000,000 dollars, is bounded north by unsettled country. The northern part of the eastern boundary is formed by Red River, a branch of the Assiniboine, which rises near the sources of the Mississippi. The boundary line, proceeding south to the sources of the Mississippi, follows that river down to lat. 31° N., thence proceeds due east to the Perdido, thence down that stream to its mouth. The gulf of Mexico forms the south boundary; the Spanish provinces form a part of the west and south-west, and the Pacific Ocean the north part of the west boundary. Long. 89° to $126^{\circ} 30'$ W., lat. 26° to $49^{\circ} 37'$ N. From north to south, about 1380 miles, and from east to west 1680; containing about 1,500,000 square miles.

The boundaries of this country are not accurately defined, and its extent not well ascertained. Spain maintains that it extends no farther east than the outlet of Lake Pontchartrain, and no farther west on the gulf of Mexico than the Sabine River; but the government of the United States claims to the Del Norte, including the province of the Texas. The claim of the United States to the country watered by the Columbia and its branches, lying between the Rocky Mountains and the Pacific Ocean has also been contested.

A small portion of this country is incorporated into the state of Mississippi, the south-east part forms the state of Louisiana, and the remainder is formed into a government by the name of Missouri Territory. But a very small part of this immense territory is yet purchased of the natives. It embraces a great variety of climate, soil, and productions. The face of the country is very various; towards the south it is level, and in many parts overflowed; towards the north elevated and hilly; and towards the west abounding in lofty mountains. The principal mountains are the Rocky Mountains.

West of the Rocky Mountains the principal rivers are the Columbia and its branches, the Multnomah, Lewis's River, and Clark's River. The principal rivers east of the Rocky Mountains are Missouri, Osage, Bighorn, La Platte, Kansas, Yellowstone, Arkansas, Red River, White River, St. Francis, Ouachitta, Moines, St. Peter's, Sabine, Brassy de Dios, Colorado, Guadalupe, and Del Norte. See MISSOURI and TEXAS.

LOUISIANA, one of the United States formed in 1812, is bounded north by Missouri Territory; east by the state of Mississippi and the gulf of Mexico. The boundary line is formed by the river Mississippi from lat. 33° to 31° N., thence by the parallel of 31° to Pearl River, thence by that stream to its mouth. The gulf of Mexico forms the southern boundary, and Sabine River the western, from its mouth to lat. 32° N.; thence the boundary line proceeds due north to lat. 33° , thence due east to the Mississippi, Long. 89° to $94^{\circ} 5'$ W., lat. 29° to 33° N.; 240 miles long from north to south, and 210 broad, containing 48,220 square miles. The number of militia in 1817 amounted to 9233.

At the time of the census, in 1810, this state was styled the territory of Orleans, and contained

twelve districts, and 75,556 inhabitants, of whom 31,660 were slaves. Since that time it has been erected into a state, with the annexation of a part of West Florida, containing the parishes of New Feliciana, East Baton Rouge, St. Helena, and St. Tammany.

The parishes, square miles, and population, in 1810, are exhibited in the following Table:—

Parishes.	Square miles.	Population.
Ascension . . .	350	5100
Assumption . . .	500	5670
Avoyelles . . .	700	3488
Baton Rouge, (West) . . .	350	3092
Concordia . . .	2100	4662
Iberville . . .	350	7050
Interior of La Fourche . . .	2500	5500
Natchitoches . . .	10600	7926
Quachitta . . .	4000	5140
Ocatahoola . . .	2000	2576
Orleans . . .	1300	46,310
Plaquemines . . .	1500	4489
Point Coupee . . .	600	5936
Rapides . . .	2300	7559
St. Bernard . . .	400	3356
St. Charles . . .	300	5107
St. James . . .	170	7672
St. John Baptiste . . .	150	5700
St. Landre, Opelousas . . .	7600	12,552
St. Mary's and St. Martin's, } Attacapas . . . }	5100	13,646
Baton Rouge, (East) . . .	6717	10,000
New Feliciana . . .	8247	
St. Helena . . .	4027	
St. Tammany . . .	2861	
Washington . . .	2286	

New Orleans is the capital, and the only large town. The most considerable towns west of the Mississippi, are Natchitoches, St. Martinsville, and Alexandria. There are five banks in this state, all at New Orleans. The legislature is composed of a senate of seventeen members, and a house of representatives, of thirty-four members. In 1818 eight of the senators, and twenty-one of the representatives were French: and the others Americans. A large proportion of the inhabitants are French and Spanish. The principal rivers are the Mississippi, Red, Quachitta, Black, Tensas, Sabine, Calcasieu, Mermentau, Vermilion, Atchafalaya, Teche, Pearl, Amite, and Iberville. The largest lakes are Pontchartrain, Maurepas, Borgne, Chetimaches, Mermentau, Calcasieu, Sabine, Bisteneau, Bodeau, and Ocatahoola.

All the southern part of this state is of warm temperature, and a vast alluvial tract of low champaign country, extending from Lake Borgne to Sabine River, and from the gulf of Mexico to Baton Rouge and Red River, about 250 miles long, and from seventy to 140 wide. This extensive tract is intersected by numerous rivers, bays, creeks, and lakes, dividing the country into a great number of islands. The country about

the Balize is one continued swamp, destitute of trees, and covered with a species of coarse reeds, from four to five feet high. Nothing can be more dreary than a prospect from a ship's mast while passing this immense waste.

A large extent of country in this state, is annually overflowed by the Mississippi. According to Mr. Darby, the average width of overflowed lands above Red River, from lat. 31° to 32° N., may be assumed at twenty miles, equal to 2770 square miles. Below lat. 31° to the efflux of the La Fourche, about eighty miles in extent, the inundation is about forty miles in width; equal to 3200 square miles. All the country below the efflux of the La Fourche is liable to be inundated equal to 2370 square miles. From this calculation it appears that 8340 square miles are liable to be inundated by the overflowing of the Mississippi; and if to this be added 2550 square miles, for the inundated lands on Red River, the whole surface of the state, liable to inundation, will amount to 10,890 square miles. Of this extent, not one-half is actually covered annually with water. The immediate banks of all the streams are seldom, and many of them never, inundated; and they afford strips of rich tillable land, from a mile to a mile and a half wide.

The country between the Mississippi, Iberville, and Pearl Rivers, is an important part of the state. The southern half is a level country, yet highly productive in cotton, sugar, rice, corn, and indigo. The northern part, presents an undulating surface, covered with a heavy growth of timber, consisting of white, red, and yellow oak, hickory, black walnut, sassafras, magnolia, and poplar. The district of New Feliciana has been considered by some as the garden of Louisiana.

The south-western part of the state, comprising the districts of Opelousas and Attacapas, consists mostly of extensive prairies. Some of these prairies are detached, but the lines of woods between them are generally very narrow; and they may be considered as forming one immense meadow. A large portion of these tracts are barren; but some parts, particularly that bordering on the Teche, are very fertile, and contain flourishing settlements. It has been estimated, that the prairie lands in the state, including the swamps along the gulf of Mexico, constitute one-fifth of its whole surface.

The country on both sides of Red River, from its mouth to the limits of the state, is intersected with lakes, which are more than forty in number, and all communicate with the river. The bottoms on the river are from one to ten miles wide, and of very fertile soil. The timber on the bottoms is willow, cotton woods, honey locust, &c.; on the rich uplands, elm, ash, hickory, mulberry, walnut, and grape-vine; on the sandy uplands are pitch and yellow pines, and oak. The staple productions are cotton, sugar, and rice.

LOUISVILLE, a town of Kentucky, United States, the capital of Jefferson county; it is pleasantly situated on the Ohio, at the head of the Rapids, being built on an eminence seventy feet high, and gently descending to a narrow plain. The principal streets run parallel with the river. A company has been incorporated here by the legislature, for the purpose of opening a

canal on the Kentucky side of the Rapids. An extensive commerce is now carried on from this town with Natchez, New Orleans, and St. Louis. It is a flourishing town, and has two banks, an academy, and excellent rope walks: 122 miles from Cincinnati, and fifty-two west of Frankfort. Inhabitants about 10,000.

LOUNGE, *v. n.* } Belg. *lunderen*; Teut. *Lounger*, *n. s.* } *Slungeren*. To linger; idle away time; live or behave lazily.

The *loungeurs* are satisfied with being merely part of the number of mankind, without distinguishing themselves from amongst them. They may be said rather to suffer their time to pass than to spend, it without regard to the past, or prospect of the future.

Spectator.

LOUR, or } Belg. *looren*; Teut. *Low'er*, *v. n. & n. s.* } *lauren*, to frown. To *LOW'ERINGLY*, *adv.* } look dark or gloomy; applied to the appearance of the sky as well as countenance; to pout; look sullen: as a substantive, gloominess; sourness of look.

Now is the winter of our discontent

Made glorious summer by this sun of York,
And all the clouds that *lowered* upon our house,
In the deep bosom of the ocean buried.

Shakspeare.

There was Diana when Actæon saw her, and one of her foolish nymphs, who weeping, and withal *lowering*, one might see the workman meant to set forth tears of anger.

Sidney.

Philoclea was jealous for Zelmane, not without so mighty a *lower* as that face could yield.

Id.

He mounts the throne, and Juno took her place,
But sullen discontent sat *lowering* on her face;
Then impotent of tongue, her silence broke,

Thus turbulent in rattling tone she spoke.

Dryden.

The *lowering* spring, with lavish rain,
Beats down the slender stem and bearded grain.

Id.

When the heavens are filled with clouds, and all nature wears a *lowering* countenance, I withdraw myself from these uncomfortable scenes.

Addison.

If on Swithin's feast the welkin *lours*,
And every penthouse streams with hasty showers,
Twice twenty days shall clouds their fleeces drain.

Gay.

Their *lowering* and pouring,

The storm no more I dread;

Though thickening and blackening

Round my devoted head.

Burns.

Ask what is human life—the sage replies,

With disappointment *louring* in his eyes,

A painful passage o'er a restless flood,

A vain pursuit of fugitive false good,

A scene of fancied bliss and heart-felt care,

Closing at last in darkness and despair.

Cowper.

Above, the frequent feudal towers

Through green leaves lift their walls of grey

And many a rock which steeply *lours*,

And noble arch in proud decay,

Look o'er this vale of vintage-bowers.

Byron.

LOURISTAN, a mountainous but fertile district of Irak, in Persia, bordering upon Khuzistan. It is abundantly watered, and this pasture is most luxuriant; but agriculture is quite neglected. The pastoral tribes of the country trace their origin to a remote antiquity, though they admit that their ancestors have become mingled with several Turkish hordes. They are savage, fearless, and nearly independent. They reside

even through the winter in black tents. The only town is Korumabad.

LOUSE, *n. s. & v. a.*

LOUS'ILY, *adv.*

LOUS'INESS, *n. s.*

LOUS'Y, *adj.*

learned company; à Gr. λυω, λυσω, he says, i. e. solvo, nati enim in cute eam erodunt. A body insect of the genus pediculus: to louse is, oddly enough, used by some of our quaintest writers for to free from lice: lousy, for mean; low-born: in a mean, paltry way.

There were lice upon man and beast.

Erod. viii. 18.

As for all other good women, that love to do but little work, how handsome it is to louse themselves in the sunshine, they that have been but a while in Ireland can well witness.

Spenser on Ireland.

I pray you now, remembrance on the lousy knave, mine host.

—A lousy knave, to have his gibes and his mockeries.

Shakespeare.

Frogs, lice, and flies, must all his palace fill

With loathed intrusion.

Milton.

Let him be daubed with lace, live high and whore, Sometimes be lousy, but be never poor.

Dryden.

Sweetbriar and gooseberry are only lousy in dry times, or very hot places.

Mortimer's Husbandry.

It is beyond even an atheist's credulity and imprudence to affirm, that the first men might proceed out of the tumours of trees, as maggots and flies are supposed to do now, or might grow upon trees; or perhaps might be the lice of some prodigious animals, whose species is now extinct.

Bentley.

Not that I value the money the fourth part of the skip of a louse.

Swift.

You sat and loused him all the sun-shine day.

Id.

LOUSE, in zoology. See PEDICULUS.

LOUT, *v. n., v. a. & n. s.*

LOUT'ISH,

LOUT'ISHLY, *adv.*

To bow; to stoop; stoop awkwardly: hence a low servile, clownish fellow. Shakespeare uses the active verb for to overpower or over-influence, or perhaps, circumvent.

He fond this holy old Urban anon

Among the saintes buriels louting.

Chaucer. Cant. Tales.

He fair the knight saluted, louting low,

Who fair him quitted, as that courteous was.

Spenser.

This lout, as he exceeds our lords, the odds

Is that we scarce are men, and you are gods.

Shakespeare.

I have need of such a youth,

That can with some discretion do my business;

For 'tis no trusting to yon foolish lout.

Id.

I am louted by a traitor villain,

And cannot help the noble chevalier.

Id.

The palmer, grey with age, with countenance louting low,

His head even to the earth before the king did bow.

Drayton.

Under the sand bag he was seen,

Louting low, like a forester green.

Ben Jonson.

Pamela, whose noble heart with disdain, that the trust of her virtue is reposed in such a lout's hands, and yet, to shew an obedience, taken in shepherdish apparel.

Sidney.

This loutish clown is such, that you never saw so

illfavoured a visor; his behaviour such, that he is beyond the degree of ridiculous.

Sidney.

Thus wailed the louts in melancholy strain.

Gay.

If after all some headstrong hardy lout Would disobey, though sure to be shut out, Could he with reason murmur at his case, Himself sole author of his own disgrace?

Cowper.

LOUTH, a market town of Lincolnshire, one of the handsomest in the county. It contains about 4000 inhabitants; and has a canal to the sea at Tilney, about eight miles long, a charity school for forty children, and a free school founded by Edward IV., together with a large church, and a fine steeple, 288 feet high. The other public buildings are the town-hall, the mansion-house, the assembly room, the theatre, and several dissenting meeting-houses. The principal manufactures are those of carpets and blankets. The town is incorporated under a warden and six assistants. It has markets on Wednesday and Saturday, and fairs on May 24th and August 16th. It is twenty-seven miles north-east of Lincoln, and 148 north of London.

LOUTH, a county in the province of Leinster, and kingdom of Ireland, bounded on the north by the counties of Monaghan and Armagh, on the south by Meath, on the east by the Irish Channel, and on the west by Cavan. It extends twenty-three miles in length, and sixteen in breadth. Its area contains 110,750 acres, which are divided amongst sixty-one parishes, and five baronies, these are called Ardee, Dundalk Baronies, Upper and Lower Ferrand, and Louth. Its chief towns are Dundalk, the Assizes town, Ardee, Carlingford, remarkable for its beds of excellent oysters; Dunleer; Castle-Bellingham, famous for its malt liquor; Louth; and Callon, the beautiful and improved residence of the right honorable lord Oriel, to whom it owes its origin, as well as its present condition. Besides these, part of the county of the town of Drogheda is properly in this county (see DROGHEDA), the Boyne being the natural boundary between Meath and Louth.

The surface of Louth is singularly undulating and well watered, and the soil remarkably fertile. Much corn is grown here, for which there is an immediate sale at Drogheda; and good coarse linen was formerly manufactured throughout the county, but this trade has passed out of this district into Yorkshire. This county abounds in military and ecclesiastic antiquities; and many ancient raths or artificial mounds, generally attributed to the Danes, exist here (vide Wright's Louthiana), besides numerous beautiful monastic ruins. The sea-coast affords some advantages of exportation, but might be made to yield still greater. Carlingford Bay is more serviceable to the adjacent county than to Louth. Dundalk Bay is much in want of improvement; and the trade of Drogheda would be multiplied tenfold, by a small expense in deepening the mouth of the river. The town of Louth, in the same county, contains only a population of 600 persons. Here are the ruins of an ancient abbey, founded by St. Patrick; the possessions of which, at the general dissolution, were granted to Sir

Oliver Plunket, whose descendants now enjoy the title of barons of Louth.

LOUVAIN, a city of the Netherlands, on the river Dyle, in the old province of Austrian Brabant. The walls are nine miles in circumference, but not above a third part of the ground is built on, the rest being laid out in gardens, fields, and vineyards. The castle stands on a high hill, surrounded with fine gardens, and has a charming prospect. The town contains nine market places, 126 streets, sixteen stone bridges, numerous water mills, and several handsome palaces. The town-house is a venerable Gothic building, adorned with statues on the outside; and the churches are handsome, particularly the collegiate church of St. Peter; but the principal ornament is the university, founded in 1426 by John IV. duke of Brabant. It contains about forty colleges, among which are four called *Pædagogia*; and an English college of friars, preachers, established by cardinal Howard, brother to the duke of Norfolk, who was originally chaplain to queen Catharine, consort to Charles II. The Irish have likewise a seminary, erected in part under the care of Eugenius Matthaüs, titular archbishop of Dublin, 1623. In 1743 the inhabitants amounted to 12,000. At the beginning of the fourteenth century, under John III., Louvain had a flourishing manufacture of woollen cloth: 400 houses being occupied by substantial clothiers, who employed an incredible number of weavers. In 1382 these weavers took up arms, and rebelled against duke Wenceslaus, throwing from the windows of the town-hall seventeen of the aldermen and counsellors, and afterwards proceeded to lay waste great part of Brabant; but being besieged, and reduced to great extremities, they implored mercy, which was granted after the execution of several of the ring-leaders. But the greater part took refuge in England; where they introduced, or at least improved, the woollen manufacture. From that period the manufacture declined, and little or no cloth of any account is now made. Upon the ruins of these looms was also formed the cloth manufacture of Limbourg, which is still carried on with advantage. The old draper's hall is now converted into public schools, where lectures in divinity, philosophy, law, and physic, and the public acts are made. Adjoining to these is the university library.

Louvain was anciently the capital of the province. It has often been besieged, but seldom taken. In 1542 it was besieged by the Guelphians; in 1572 by William, prince of Orange; in 1635 by the Dutch and French united; and in 1710 by the French; but on all these occasions the enemy were obliged to retire with loss. In 1746, however, it was taken by the French; and again in 1792 by the French republicans under Dumourier, but evacuated on the 22d of March, 1793. It was at last retaken and long annexed to the republic in 1794. Population 25,000. It lies fourteen miles north-east of Brussels, and twenty-one south-east of Antwerp.

LOUVETURE (Toussaint), a negro chief, who by his intelligence, bravery, and activity, had nearly accomplished the independence of St. Domingo. In 1796 general Rochambeau

confided to him the command of a division of the French army, destined to oppose the English, and from this period he appears to have conceived a project of becoming independent. He expelled from the island the French commissary Santhonax, and proceeded with great artifice towards the execution of his designs. In 1799 the colony became the prey of intestine divisions, and a civil war took place between Toussaint and the mulatto general Rigaud, in which the former proved triumphant. On the accession of Buonaparte, this negro chief, by alternate submission and hostility, endeavoured to secure his authority, until, at length, general Leclerc, with a French fleet and army, in February 1801, put an end to his temporising policy: after a short but brave resistance, he was compelled to submit. He was now transported to France, and confined, first in the temple at Paris, and then in the fortress of Joux, where he died in 1803, not without suspicion of violence being used.

LOUVET (John Baptist), a celebrated French senator, and literary character, a considerable sufferer during the course of the most bloody part of the French revolution. From an interesting sketch of his life, written by himself in the caverns of Jura in 1794, and published in 1795, our limits permit us only to select the few following particulars:—He passed most of his time in the country, composing works of literature; and his love of independence had led him to banish luxury so completely, that 800 francs per annum (about £34 sterling) sufficed for his maintenance. The first seven volumes of his first work, *The Adventures of the Chev. de Faublas*, increased his income; and the publication of six more, in spring 1789, added to it still farther. But the profits of his next novel were diminished by the revolution, which, by the demand it occasioned for political writings, stifled the taste for frivolous pieces. Mounier having in October, 1789, published a pamphlet, accusing the Parisians of the crimes of the Orleans faction, Louvet wrote an answer, entitled, *Paris Justified*; which was so well received, that he was immediately admitted a member of the Jacobin club, which, however, he but seldom attended. He soon after produced two comedies. In the one, of five acts, entitled *L'Anobli Conspirateur, ou le Bourgeois Gentilhomme du 18me siecle*, he attacked the prejudices concerning nobility. The other was a pointed satire on the mummeries of the court of Rome, entitled *L'Election et L'Audience du Grand Lama Sispil*. These, however, being thought too bold, were not performed; but his farce entitled *La Grande Revue des armees noires et blanches*, written in ridicule of the army of Coblenz, was represented twenty-five times. In December, 1791, Louvet presented a petition against the princess to the legislative assembly; which, with other two of his petitions, were printed by order of the assembly. In 1792, in the debate respecting a war with Austria, which gave rise to the schism between the Brissotines and Robespierre's faction, Louvet joined the former, reduced Robespierre himself to silence, and from that moment was proscribed by him. Mean time Louvet became editor of the paper called

the Sentinel, of which 20,000 copies were sometimes printed, and in one number of which he attacked the conduct of Dumourier. After the bloody 2d of September he denounced Robespierre, and, had he been supported by Petion, would have prevented the rise of that tyrant's power and the horrors that followed. He, however, published a letter addressed to Maximilian, Robespierre, and his Royalists. On this occasion he was expelled the Jacobin club, together with Roland and other eminent Brissotines. At the trial of Louis XVI. he supported the motion of Salle for an appeal to the people; and not long after was proscribed. After providing for the safety of Lodoiska his wife, and being five weeks secreted by two friends, he left Paris, June 24th; and after passing sometimes for a smuggler, sometimes for a soldier, at other times for a deserter, and at all times for a violent Jacobin or Maratist, and running a thousand risks of being detected, he at last obtained a safe and impenetrable asylum in one of the caverns of Mount Jura; where he remained till the end of July, 1794, when his wife brought him the news of the Thermidorean revolution; soon after which he returned to Paris, was welcomed to his seat by the convention, and not long after elected president. After this he commenced bookseller, but died in 1797.

LOUVRE, the old royal palace at Paris, on the north bank of the Seine, a splendid quadrangular edifice, with a court in the centre, completed by Napoleon. The origin of its name, and the time of the erection of the oldest part of it, are unknown. We only know that Philip Augustus, in 1214, built a fort and a state prison in this place; that Charles V., during the years 1364—80, added some embellishments to the building, and brought his library and his treasury thither; and that Francis I., in 1528, erected that part of the palace which is now called the Old Louvre. Henry IV. laid the foundation of the splendid gallery which connects the Louvre, on the south side, with the Tuileries; Louis XIII. erected the centre; and Louis XIV., according to the plan of the physician Perrault, the elegant façade towards the east, together with the colonnade of the Louvre, which, even now, is the most perfect work of architecture in France. At a later period, Louis XIV. chose the palace built by him at Versailles for his residence. After Napoleon had taken possession of the Tuileries, he began a second gallery, opposite to the former, by which the two palaces would have been made to form a great whole, with a large quadrangular court in the centre; only 600 feet of it were completed at the time of his abdication, and it has not since been continued. Since the revolution, the collection of antiquities has been kept in the lower floor of the Louvre. Here, also, the exhibitions of national industry take place, and the academies hold their sessions.—To have the privilege of the Louvre, formerly meant, in France, a permission to drive, with a coach, into the courts of all the royal palaces. At first, this was the prerogative of the princes only; but, in 1607, when a duke, under the pretence of indisposition, rode into the Louvre, Henry IV. gave him (and, in

1609, the duke of Sully also) permission constantly to do so. At last, during the minority of the king Louis XIII., all the high officers of the crown, and dukes, obtained this privilege from Mary of Medici.

LOUYS, or LOUIS (John), an eminent engraver, who flourished about the middle of the sixteenth century. According to Basin, he was a native of Flanders. He learned the art from Peter Southman, at the time that Suyderhoef studied under him; and his usual style of engraving bears some resemblance to that of his master. One of his best prints is Diana, with her nymphs, reposing after the chase; a middling-sized plate, from Rubens.

LOW, *adj. adv. & v. a.* } Sax. *lēȝþ*; Goth. *lēȝh*; Swed. Teut. *lōw*, *v. a. v. n. & n. s.* } and Belgic *lag*.
LOWLAND, }
LOWLILY, } Dan. *law*, are connected, probably,
LOWLINESS, } with the Goth. *la*,
LOWLY, *adj. & adv.* } *leggja*. To lay or
LOWN, *n. s.* } deposit. See LAY.
LOWNESS, } Near the ground;
LOWSPIRITED, } under the ground;
LOWTHOUGHTED, *adj.* }
deep; depressed; not high or elevated on any scale of admeasurement, rank, price, honor, time, intellect, or sound: hence subdued; impotent; humble; submissive: it is used adverbially in the same variety of signification: the phrases 'low water,' 'low ebb,' clearly relate to the depth of the surface of the water, from the land or some given plane, and not to its shallowness, as Dr. Johnson supposes by defining low, in this sense, 'as not deep.' Swift uses lowed for lowered, barbarously: to lower is to make or bring low: lessen; grow less: lowland is flat, marshy land: lowly and lowliness are used metaphorically only, i. e. for humbly or meanly; humility or meanness: lown, is an obsolete name of a vessel, or low fellow: lowness is applied both literally and metaphorically in one or other of the senses noted above.

It became a spreading vine of *low* stature.

Ezek. xvii. 6.

Take my yoke upon you, and learn of me; for I am meek and *lowly* in heart.

Matt. xi. 29.

To be worst,

The *lowest*, most dejected thing of fortune,
Stands still in esperance.

Shakspeare.

King Stephen was a worthy peer,

His breeches cost him but a crown,

He thought them sixpence all too dear,

And therefore called the tailor *lown*.

Id.

They know

By the height, the *lowness*, or the mean, if dearth
Or foison follow.

Id. Antony and Cleopatra.

Now I must

To the young man send humble treaties,

And palter in the shift of *lowness*.

Shakspeare.

'Tis better to be *lowly* born,

And range with humble livers in content,

Than to be perked up in a glistening grief,

And wear a golden sorrow.

Id. Henry VIII.

Moses was a meek man but a severe master; his face did not more shine in God's aspect upon him, than it *lowered* in his aspect to men.

Bp. Hall.

Vast yellow offsprings are the German's pride ;
But hotter climates narrower frames obtain,
And low-built bodies are the growth of Spain.

Creesh.

It will also happen, that the same part of the pipe which was now *lowermost* will presently become higher, so that the water does ascend by descending ; ascending in comparison to the whole instrument, and descending in respect of its several parts.

Wilkins.

Equal in days and nights, except to those
Beyond the polar circles ; to them day
Had unbenighted shone, while the low sun,
To recompense his distance, in their sight
Had rounded still the horizon, and not known
Or east or west.

Milton.

The *lowest* bottom shook of Erebus.

Id.

So high as heaved the tumid hills, so low,
Down sunk a hollow bottom, broad and deep,
Capacious bed of waters.

Id.

His volant touch
Instinct through all proportions low and high
Fled and pursued transverse the resonant fugue.

Id.

Yet sometimes nations will decline so low
From virtue, which is reason, that no wrong
But justice, and some fatal course annexed,
Deprives them of their outward liberty,
Their inward lost.

Id.

Heaven is for thee too high
To know what passes there ; be lowly wise :
Think only what concerns thee, and thy being.

Id.

Above the smook and stir of this dim spot,
Which men call earth, and with *lowthoughted* care,
Strive to keep up a frail and feverish being.

Id.

From the tree her step she turned,
But first low reverence done, as to the power
That dwelt within.
There under Ebon shades and low-browed rocks,
As ragged as thy locks,
In dark Cimmerian desert ever dwell.

Id.

Eve,

With *lowliness* majestic, from her seat,
And grace, that won who saw to wish her stay,
Rose.

Id. Paradise Lost.

To keep them all quiet, he must keep them in
greater awe and less splendor ; which power he will
use to keep them as low as he pleases, and at no
more cost than makes for his own pleasure.

Graunt.

Never the earth on his round shoulders bare,
A maid trained up from high or low degree,
That in her doings better could compare
Mirth with respect, few words with curtesy.

Sidney.

As when in open air we blow,
The breath, though strained, sounds flat and low :
But if a trumpet take the blast,
It lifts it high, and makes it last.

Waller.

Some people know it is for their advantage to lower
their interest.

Child on Trade.

His spirits are so low his voice is drowned,
He hears as from afar, or in a swoon,
Like the deaf murmur of a distant sound.

Dryden.

His stile is accommodated to his subject, either
high or low ; if his fault be too much *lowness*, that of
Persius is the hardiness of his metaphors.

Id.

My eyes no object met
But low-hung clouds, that dipt themselves in rain.
To shake their fleeces on the earth again.

Id.

What a devil is he ?

His errand was to draw the lowland damps,

And noisome vapours, from the foggy fens,
Then breathe the baleful stench with all his force.

Id.

The *lowliness* of my fortune has not brought me to
flatter vice ; it is my duty to give testimony to virtue.

Id.

With cries they filled the holy fane ;
Then thus with lowly voice Ilioneus began.

Id.

As two men were walking by the sea-side, at low
water, they saw an oyster, and both pointed at it
together.

L'Estrange.

The blessings of fortune are the *lowest* : the next
are the bodily advantages of strength and health ;
but the superlative blessings, in fine, are those of the
mind.

Id.

Try in men of low and mean education, who have
never elevated their thoughts above the spade.

Locke.

In that part of the world which was first inhabited,
even as low down as Abraham's time, they wandered
with their flocks and herds.

Id.

The kingdom will lose by this *lowering* of interest,
if it makes foreigners withdraw any of their money.

Id.

Severity, carried to the highest pitch, breaks the
mind ; and then, in the place of a disorderly young
fellow, you have a *lowspirited* moped creature.

Id.

Who can imagine that in sixteen or seventeen
hundred years time, taking the *lower* chronology that
the earth had then stood, mankind should be propa-
gated no farther than Judaea ?

Burnet.

The name of servants has of old been reckoned to
imply a certain meanness of mind, as well as *lowness*
of condition.

South.

Lucia, speak low, he is retired to rest.

Addison.

He has not so many thoughts that are low and
vulgar, but, at the same time, has not so many
thoughts that are sublime and noble.

Id.

The theatre is so well contrived, that, from the
very deep of the stage, the *lowest* sound may be heard
distinctly to the farthest part of the audience ; and
yet, if you raise your voice as high as you please,
there is nothing like an echo to cause confusion.

Id. on Italy.

In Gothic cathedrals, the narrowness of the arch
makes it rise in height, the *lowness* opens it in
breadth.

Addison.

Though he before had gall and rage,
Which death or conquest must assuage ;
He grows dispirited and low,

He hates the fight, and shuns the foe.

Prior.

As our high vessels pass their watery way ;

Let all the naval world due homage pay ;

With hasty reverence their top-honours lower,

Confessing the asserted power.

Id.

When water issues out of the apertures with more
than ordinary rapidity, it bears along with it such
particles of loose matter as it met with in its passage
through the stone, and it sustains those particles till
its motion begins to remit, when by degrees it *lowers*
them, and lets them fall.

Woodward.

The heavens are not pure in his sight, and he
charges even his angels with folly ; with how *lowly*
a reverence must we bow down our souls before so
excellent a Being, and adore a Nature so much su-
perior to our own !

Rogers.

It is low ebb sure with his accuser, when such pec-
cadillos are put in to swell the charge.

Atterbury.

If with a true Christian *lowliness* of heart, and a
devout fervency of soul, we perform them, we shall
find that they will turn to a greater account to us,
than all the warlike preparations in which we trust.

Id.

In comparison of these divine writers, the noblest
wits of the heathen world are low and dull.

Felton.

Another crowd
Preferred the same request, and *lowly* bowed.

Pope.

Oh grace serene! Oh virtue heavenly fair!
Divine oblation of *lowthoughted* care!
Fresh blooming hope, gay daughter of the sky,
And faith our early immortality! *Id.*

Corruption, like a general flood,
Shall deluge all; and avarice creeping on,
Spread like a *low-born* mist, and blot the sun. *Id.*

For from the natal hour distinctive names,
One common right the great and *lowly* claims. *Id.*

Whenever I am turned out, my lodge descends
upon a *low-spirited* creeping family. *Swift.*

The value of guineas was *lowered* from one-and-
twenty shillings and sixpence to one-and-twenty
shillings. *Id.*

O, had she but been of *lower* degree,
I then might have hoped she wad smiled upon me!
O, how past describing had then been my bliss,
As now my distraction no words can express! *Burns.*

Without a stone to mark the spot,
And say, what Truth might well have said,
By all, save one, perchance forgot,
Ah wherefore art thou *lowly* laid? *Byron.*

LOW, *v. n.* Sax. *þlopan*; Belg. *loegen*, of
old Goth. *loa*, to sound. To bellow as an ox.

Doth the wild ass bray when he has grass; or
loweth the ox over his fodder? *Job vi. 5.*

The maids of Argos, who, with frantick cries,
And imitated *lowings* filled the skies. *Roscommon.*

Fair *lō* graced *lōs* shield, but *lō* now,
With horns exalted stands, and seems to *low*. *Dryden.*

Had he been born some simple shepherd's heir,
The *lowing* herd, or fleecy sheep his care. *Prior.*

The curfew tolls the knell of parting day,
The *lowing* herds wind slowly o'er the lea,
The ploughman homeward plods his weary way,
And leaves the world to darkness and to me. *Gray's Elegy.*

LOW-BELL is a name given to the bell, by means of which they take birds in the night, in open champaign countries, and among stubble, in October. The method is to go out about nine o'clock in a still evening, when the air is mild, and the moon does not shine. The low-bell should be of a deep and hollow sound, and of such a size that a man may conveniently carry it in one hand. The person who carries it is to make it toll all the way he goes, as nearly as possible, in that manner in which the bell on the neck of a sheep tolls as it goes on and feeds. There must also be a box made like a large lantern, about a foot square, and lined with tiff, but with one side open. Two or three great lights are to be set in this, and the box is to be fixed to the person's breast, with the open side forwards, so that the light may be cast forward to a great distance, and constantly show to the person that carries it, whatever birds roost upon the ground in the large space over which it extends. Two persons must follow him who carries the box and bell, one on each side, so as not to be within the reach of the light to show themselves. Each of these is to have a hand net of about three or four feet square, fastened to a long pole; and on which ever side any bird is seen at roost, the person who is nearest is to lay

his net over it, and take it with as little noise as possible. When the net is over the bird, the person who laid it is not to be in a hurry to take the bird, but must stay till he who carries the light is got beyond it, that his motions may not be discovered. The blaze of the light, and the noise of the bell, terrify and amaze the birds in such a manner that they remain still to be taken; but the people must be very quiet. Some people go on this scheme alone. The person then fixes the light box to his breast, and carries the bell in one hand, and the net in the other; the net in this case may be somewhat smaller, and the handle shorter. When more than one are out at a time it is always proper to carry a gun; as it is no uncommon thing to see a hare when on this expedition.

LOWER (Richard), M. D., an eminent English physician in the seventeenth century, born in Cornwall, and educated at Westminster and Oxford. He practised physic under Dr. Thomas Willis, and in 1674 they discovered the medicinal waters at Astrop in Northamptonshire; which, upon their recommendations, became very much frequented. In 1666 he followed Dr. Willis to London; practised physic under him; and became fellow of the Royal Society, and of the college of physicians. In 1669 he published *Tractatus de Corde*; also *de Motu et Dolore Sanguinis*, et *Chyli in eum Transitu*. After the death of Dr. Willis, in 1765, he was esteemed the most eminent physician in London. He died in 1691.

LOWERING, among distillers, a term used to express the debasing the strength of any spirituous liquor, by mixing water with it. The standard and marketable price of these liquors is fixed, in regard to a certain strength in them, called proof; this is that strength which makes them, when shaken in a phial, or poured from on high into a glass, retain a froth for some time. In this state, spirits consist of about half pure or totally inflammable spirit, and half water; and if any foreign or home spirits are to be exposed to sale, and are found to have that proof wanting, scarcely any body will buy it, till it has been distilled again, and brought to that strength; and, if it is above that strength, the proprietor usually adds water to it, to bring it down to that standard. There is another kind of lowering among the retailers of spirituous liquors, by reducing it under the standard proof. Whoever has the art of doing this, without destroying the bubble proof, which is easily done, by means of some addition that gives a greater tenacity to the parts of the spirits, will deceive all that judge by this proof alone. In this case, the best way to judge of liquors is by the eye and tongue, and the hydrometer. See DISTILLATION.

LOWRIE (Wilson), F. R. S., an engraver of great skill and intelligence, was the son of Mr. Strickland Lowrie, a portrait painter of Whitehaven, and born there January 24th, 1762. At the age of fifteen he displayed a decided partiality for his future profession, although circumstances prevented his immediately acting upon his determination to follow it. After a youthful freak, which induced him to quit his paternal roof in company with a friend, he wandered up to Lon-

don, both supporting themselves on the road by acting occasionally as house-painters. He, however, returned to his friends, and commenced, in the neighbourhood of Worcester, an acquaintance with Mr. Ross, an engraver of some ingenuity, from whom he received his first instructions. Again visiting London, in his eighteenth year, he was fortunate enough to obtain the notice of the late alderman Boydell, by whom he was employed and introduced to Sir William Blizard. The latter finding, as he thought, a strong predilection in Lowrie for medical studies, procured him gratuitous access to the best anatomical lectures; but, after several years attendance at the hospitals, &c., Mr. Lowrie took a distaste to the profession, and returned with great ardor to engraving. He soon distinguished himself for his skill in drawing the human figure, and made a rapid progress, at the Royal Academy, in his art. Among other inventions with which he benefited, may be reckoned a ruling machine for engraving successive lines, either equidistant or in just gradation, from the greatest required distance to the nearest possible. Upon this instrument, invented in 1790, he made various improvements, and constructed one capable of drawing lines to a point, and of forming concentric circles. He introduced, in 1798, the use of diamond points for etching, and was the first person who succeeded in what is technically termed 'biting steel in' well. Mr. Lowrie, having now attained the highest rank in his peculiar line of art, was employed in 1800 on Dr. Rees's Cyclopædia, which, for nearly twenty years, occupied a large portion of his attention; Wilkins's Vitruvius, and Magna Græcia; Nicholson's Architectural Dictionary, &c. His chef-d'œuvre is considered to be an engraving from the Doric Portico at Athens, in Nicholson's Architecture. Of his engravings of machinery that of Ramsden's Sextant, given gratuitously with the instrument, is the best. Mr. Lowrie, who was elected a fellow of the Royal Society in 1812, was a favorer of the Berkeleian system, and published in the Imperial Magazine, January 1820, an ingenious letter on the Mosaic account of the deluge. He died July 1824.

LOWTH (Dr. William), a learned divine, born in London in 1661, was the son of an apothecary, and took his degree of D. D. at Oxford. His learning recommended him to Dr. Mcw, bishop of Winchester, who made him his chaplain, gave him two livings in Hampshire, and conferred on him a prebend in the cathedral of Winchester. Few were more deeply versed in critical learning; there being scarcely any ancient author, Greek or Latin, profane or ecclesiastical, that he had not read, constantly accompanying his reading with critical and philosophical remarks. Of his collections in this way, he was upon all occasions very communicative: hence his notes on Clemens Alexandrinus, inserted in Potter's edition; his remarks on Josephus, communicated to Hudson for his edition; and those numerous annotations on the Ecclesiastical Historians, inserted in Reading's edition of them at Cambridge. He also assisted the author of Bibliotheca Biblica; and Dr. Chandler, late bishop of Durham, in his Defence of Christianity. His

piety, diligence, hospitality, and beneficence, rendered his life highly exemplary, and enforced his public exhortations. He married Margaret, daughter of Robert Pitt, esq., of Blandford, by whom he had two sons and three daughters. He died in 1732. He published, 1. A Vindication of the Divine Authority and Inspiration of the Old and New Testament: 2. Directions for the Profitable Reading of the Holy Scriptures; 3. Commentaries on the Prophets; and other works.

LOWTH (Robert), D. D. and F. R. S., son of the preceding, and bishop successively of St. David's, Oxford, and London, was born on the 29th of November, 1710. He studied at Winchester College, where his exercises were distinguished by their elegance; and in 1730 he went to New College, Oxford, where he continued his studies, and took the degree of M. A. June 8th, 1737. In 1741 he was elected by the university professor of Hebrew poetry, re-elected in 1743, and, whilst he held that office, he read his admirable lectures De sacra poesi Hebræorum. In 1744 bishop Hoadley appointed him rector of Ovington in Hants; in 1750 archdeacon of Winchester, and rector of East Weedhay in 1753. In 1754 the university created him D. D. by diploma. Having, in 1749, travelled with lord George and lord Frederick Cavendish, the duke being, in 1755, lord lieutenant of Ireland, Dr. Lowth went to that kingdom as his grace's first chaplain. Soon after this, he was offered the bishopric of Limerick; but, preferring a less dignified station in his own country, he exchanged it with Dr. Leslie, prebendary of Durham, and rector of Sedrefield, for these preferments. In November, 1765, he was chosen F. R. S. In June, 1766, he was, on the death of Dr. Squire, raised to the see of St. David's; and in October translated to that of Oxford. In April 1777 he was translated to the see of London, on the death of bishop Terrick; and in 1783 he declined the offer of the archbishopric of Canterbury. After having been long afflicted with the stone, he died at Fulham, November 3d, 1787. He had married, in 1752, Mary, daughter of Lawrence Jackson of Christ Church, Hants, esq., by whom he had two sons and five daughters; of whom two and his lady survived him. His literary character may be estimated from the value and the importance of his works. Besides his Prelections on the Hebrew Poetry, which have been read with applause abroad and at home, he published, in 1751, The Life of William of Wykeham, Bishop of Winchester, with a dedication to bishop Hoadley; which involved him in a dispute concerning a decision which that bishop had made respecting the wardenship of Winchester College. In 1762 was first published his Short Introduction to English Grammar, which has since gone through many editions. In 1778 he published his last great work, A Translation of Isaiah. Several occasional discourses were also published by himself, worthy of their author. Of his poetical pieces, none display greater merit than Verses on the Genealogy of Christ, and The Choice of Hercules, both written very early in his life. He wrote a spirited Imitation of an Ode of Horace, applied to the alarming situation of Britain in 1745: and

some Verses on the Death of Frederick Prince of Wales, with a few smaller poems. Learning and taste, however, did not constitute bishop Lowth's highest excellence. His amiable manners rendered him an ornament to his station, whilst they endeared him to all with whom he conversed; and his zeal for the interest of religion made him promote to places of trust and dignity such clergymen as he knew were best qualified to fill them; and, whilst virtue and learning are esteemed, the memory of Lowth will be respected.

LOXA, a large town of Spain, in Granada, situated in a romantic position on the Xenil, at the foot of the mountains which enclose the plain of Granada. Its streets rise above one another on the side of the mountain; crowned by a Moorish castle. It has some salt-works, and manufactures of copper. Inhabitants 9000. Thirty miles west of Granada, and eighteen S. S. E. of Cordova.

LOXA, a province and town of Quito, South America, abounding in bark and grain, cows and mules. Cochineal is also plentiful here. It abuts northward on Guayaquil. The town was founded in 1546, and is 237 miles south of Quito. Inhabitants 10,000.

LOXIA, in zoology, a genus of birds of the order of passerines: the distinguishing characters are these: the bill is strong, convex above and below, and very thick at the base; the nostrils are small and round; the tongue is as if cut off at the end; the toes are four, placed three before and one behind; excepting in one species, which has only two toes before and one behind. There are ninety-three species, besides many varieties. The following are among the most remarkable:

L. Abyssinica, the Abyssinian grossbeak, is about the size of the hawfinch; the bill is black; the irides are red; the top and sides of the head, throat, and breast, are black; the upper parts of the body, belly, and thighs, pale yellow, inclining to brown where the two colors divide: the scapulars are blackish; the wing-coverts brown, bordered with gray; the quills and tail brown, edged with yellow: the legs are of a reddish-gray. This bird is found in Abyssinia, and makes a curious nest of a pyramidal shape, which hangs from the ends of branches. The opening is on one side, facing the east; the cavity is separated in the middle by a partition, up which the bird rises perpendicularly about half-way, when descending, the nest is within the cavity, on one side. The brood is thus defended from snakes, squirrels, monkeys, and other mischievous animals, besides being secure from rain, which in that country sometimes lasts for six months together.

L. Bengalensis, the Bengal grossbeak, is a trifle bigger than a house-sparrow; the bill is of a flesh-color; the irides are whitish; the top of the head is of a golden yellow; the upper parts of the body are brown, with paler edges; the sides of the head and under parts rufous white; across the breast is a brown band, uniting to, and of the same color with, the upper parts of the body; the legs are of a pale yellow, the claws gray. This bird is exceedingly common in Hindostan; he is astonishingly sensible, faithful, and docile, never voluntarily deserting the place

where his young were hatched, but not averse, like most other birds, to the society of mankind, and easily taught to perch on the hand of his master. In a state of nature he generally builds his nest on the highest tree that he can find, especially on the palmyra, or on the Indian fig-tree. He makes it of grass, which he weaves like cloth, and shapes like a large bottle, suspending it firmly on the branches, but so as to rock with the wind, and placing it with its entrance downwards to secure it from birds of prey. His nest usually consists of two or three chambers; and it is the popular belief that he lights them with fire-flies, which he catches alive at night, and confines with moist clay or with cow-dung. That such flies are often found in his nest, where pieces of cow-dung are also stuck, is indubitable; but, as their light could be of little use to him, it seems probable that he only feeds on them. He may be taught with ease to fetch any small thing that his master points out to him. The young Hindoo women at Benares, and in other places, wear very thin plates of gold, called ticas, slightly fixed by way of ornament between their eye-brows; and when they pass through the streets it is not uncommon for the youthful libertines, who amuse themselves with training bayas, to give them a signal, which they understand, and send them to pluck the pieces of gold from the foreheads of their mistresses, which they bring in triumph to the lovers. The baya feeds naturally on grasshoppers and other insects; but will subsist, when tame, on pulse macerated in water.

L. cærulea, the blue grossbeak, is the size of the bullfinch: the bill is strong, brown, and the base of it surrounded with black feathers, which reach on each side as far as the eye: the plumage is in general a deep blue, except the quills and tail, which are brown, with a mixture of green, and across the wing-coverts a band of red: the legs are dusky. They inhabit South America, but are sometimes found in Carolina, where they are seen only in pairs, but disappear in winter. Their song consists only of a single note.

L. cardinalis, the cardinal grossbeak, is nearly eight inches in length. The bill is stout, and of a pale red color; the irides are hazel; the head is finely crested, the feathers rising up to a point when erect; round the bill, and on the throat, the color is black; the rest of the bird is of a fine red; the quills and tail duller than the rest, and brownish within; the legs are the color of the bill. The female differs from the male, being mostly of a reddish-brown. This species is met with in several parts of North America; and has attained the name of nightgale, from the sweetness of its song, which resembles that of the nightgale. In spring, and for the greater part of the summer, it sits on the tops of the highest trees, singing early in the morning, and piercing the ear with its loud pipe. They are fond of maize and buck-wheat; and will collect together large hoards of these, often as much as a bushel, which they artfully cover with leaves and small twigs, leaving only a small hole for entrance into the magazine. They are also fond of bees. They come in the beginning of April

into New York and the Jerseys : in autumn they depart towards Carolina. They are pretty tame, frequently hopping along the road before the traveller ; but are not gregarious, scarcely ever more than three or four being met with together.

L. chloris, the green finch, is a well known bird : the general color is a yellowish-green, palest on the rump and breast, and inclining to white on the belly ; the quills are edged with yellow, and the four outer tail-feathers are yellow from the middle to the base ; the bill is pale brown and stout ; and the legs are of a flesh color. This species is common in Britain, and flies in troops during winter. They make their nests in some low bush or hedge, composed of dry grass, and lined with hair, wool, &c., laying five or six greenish eggs, marked at the larger end with red-brown ; and the male takes his turn in sitting. These birds soon become tame ; even old ones being familiar almost as soon as caught ; they live five or six years. Like the chaffinch, they grow blind if exposed to the sun. This species is also pretty common every where on the continent, but not very frequent in Russia ; and is not at all found in Siberia, though it has been met with in Kamtschatka.

L. coccothraustes, the hawfinch, is in length about seven inches, breadth thirteen : the bill is funnel-shaped, strong, thick, and of a dull pale pink color ; the breast and whole under side are of a dirty flesh-color ; the neck ash-colored ; the back and coverts of the wings of a deep brown, those of the tail of a yellowish bay ; the greater quill-feathers are black, marked with white on their inner webs ; the tail is short, spotted with white on the inner sides ; and the legs are of a flesh-color. This species is ranked among the British birds ; but they only visit these kingdoms occasionally, for the most part in winter, and never breed here. They abound more in France, coming into Burgundy in small flocks about the beginning of April ; and soon after making their nests between the bifurcation of the branches of trees, of small dry fibres, intermixed with liverwort, and lined with finer materials. The eggs are of a roundish shape, of a bluish-green spotted with olive-brown, with a few irregular black markings interspersed. They are also common in Italy, Germany, Sweden, and the west and south parts of Russia, where the wild fruits grow. They feed on berries, kernels, &c., and, from the great strength of its bill, crack the stones of the fruit of the haws, cherries, &c., with the greatest ease.

L. curvirostra, the common cross-bill, is about the size of a lark, and is known by the singularity of its bill, both mandibles of which curve opposite ways and cross each other. The general color of the plumage in the male is of a red-lead, inclining to rose color, and more or less mixed with brown ; the wings and tail are brown ; the legs black. The female is of a green color, more or less mixed with brown in those parts where the male is red. This species inhabits Sweden, Germany, Poland, Switzerland, Russia, and Siberia, where it breeds ; but migrates sometimes in vast flocks into Britain and other countries ; for, though in some years

few are met with, yet in others they have visited us by thousands, fixing on such spots as are planted with pines, for the sake of the seeds, which are their natural food. They hold the cone in one claw like the parrot. They also visit North America and Greenland ; and make their nests in the highest parts of fir-trees, fastening them to the branches with the resinous matter which exudes from the trees.

L. enucleator, the pine grossbeak, is about nine inches long. The bill is strong, dusky, and forked at the end ; the head, back, neck, and breast, are of a rich crimson ; the bottoms of the feathers ash-color ; the quill-feathers and tail dusky, their exterior edges of a dirty white ; the legs are black. This species frequents the most northern parts of this kingdom, being only met with in Scotland, especially the Highlands, where they breed, and inhabit the pine-forests, feeding on the seeds, like the cross-bill. They also abound in the pine-forests of Siberia, Lapland, and the north of Russia ; and are common about St. Petersburg in autumn, where they are caught in great plenty for the table. They return north in spring. They are likewise common in the north parts of America, appearing at Hudson's Bay in May, and feeding on the buds of the willow.

L. orix, the grenadier grossbeak, is about the size of a house sparrow. The forehead, sides of the head, and chin, the breast and belly, are black ; the wings are brown, with pale edges ; and the rest of the body is of a beautiful red color ; the legs are pale. These birds inhabit St. Helena, and the Cape of Good Hope ; frequenting watery places that abound with reeds, among which they are supposed to make their nest. These birds, among the green reeds, from the brightness of their colors, appear like so many scarlet lilies.

L. pensilis, the pensile grossbeak, the todgy bird of Fryer, is about the size of the house sparrow : the bill is black, the legs are yellow ; the head, throat, and fore part of the neck, the same ; from the nostrils springs a dull green stripe, which passes through the eye and beyond it, where it is broader ; the hind part of the head and neck, the back, rump, and wing coverts, are of the same color ; the quills are black, edged with green ; the belly is deep gray, and the tail and legs are black. This species is found at Madagascar, and fabricates a nest of a curious construction, composed of straw and reeds interwoven in shape of a bag, the opening beneath. It is fastened above to a twig of some tree ; mostly to those growing on the borders of streams. On one side of this, within, is the true nest. The bird does not form a new nest every year, but fastens a new one to the end of the last ; and often as many as five in number, one hanging from another. These build in society like rooks, 300 or 600 being often seen on one tree.

L. Philippina, the Philippine grossbeak, is about the size of a sparrow : the top of the head, the hind part of the neck and back, and the scapulars, are yellow, the middle of the feathers brown ; the lower part of the back is brown, with whitish margins ; the fore part of the neck

and breast are yellow; and thence to the vent yellowish white; the wing coverts brown, edged with white; the quills are brown, with pale rufous, or whitish edges; and the tail the same; the legs are yellowish. These birds inhabit the Philippine Islands, and are noted for making a most curious nest, in form of a long cylinder, swelling out into a globose form in the middle. This is composed of the fine fibres of leaves, &c., and fastened by the upper part to the extreme branch of a tree. The entrance is from beneath; and after ascending the cylinder, as far as the globular cavity, the true nest is placed on one side of it; where this little architect lays her eggs, and hatches her brood in perfect security. A variety of this species, the *baglafechat*, an inhabitant of Abyssinia, makes a very curious nest like the former, but a little different in shape, which is said to have somewhat of a spiral form, not unlike that of a nautilus. It suspends it, like the other, on the extreme twig of some tree, chiefly one that hangs over some still water; and always turns the opening towards that quarter whence least rain may be expected.

L. pyrrhula, the bullfinch, is well known. The head, wings, and tail, are black; the breast and belly red; the upper tail coverts and vent white; and the breast ash-color. The female differs in having the under parts of a reddish brown. This species is common in most parts of the continent, and throughout Russia and Siberia, where it is caught for the table. They are pretty common in England, and build in bushes, five or six feet from the ground. The nest is composed chiefly of moss; and the eggs, which are five or six in number, are dirty bluish white, marked at the large end with dark spots. The time of breeding is about the end of May, or beginning of June. In summer they frequent woods and retired places. In winter they approach gardens and orchards, and make havoc among the buds of trees. The bullfinch, in its wild state, has only a plain note, but when tamed it becomes remarkably docile, and may be taught any tune after a pipe, or to whistle any notes in the justest manner; it seldom forgets what it has learned; and will become so tame as to come at call, perch on its master's shoulders, and, at command, go through a difficult musical lesson. They may be also taught to speak, and some thus instructed are annually brought to London from Germany.

L. socia, the sociable grossbeak, is about the size of a bullfinch: the general color of the body above is rufous brown, the under parts yellowish; the beak and muzzle are black; the legs brown, and the tail is short. It inhabits the interior country at the Cape of Good Hope. These birds live together in large societies, and their mode of nidification is extremely uncommon. They build in a species of mimosa, which grows to an uncommon size, and which they seem to select for that purpose, as well on account of its ample head, and the great strength of its branches, calculated to admit and to support the extensive buildings which they have to erect, as for the tallness and smoothness of its trunk, which their great enemies, the serpent

tribe, are unable to climb. The method in which the nests themselves are fabricated is highly curious. In one described by Mr. Paterson there could be no less a number, he says, than from 800 to 1000 residing under the same roof. He calls it a roof, because it perfectly resembles that of a thatched house; and the ridge forms an angle so acute and so smooth, projecting over the entrance of the nest below, that it is impossible for any reptile to approach them. The industry of these birds 'seems almost equal,' says our author, 'to that of the bee; throughout the day they appear to be busily employed in carrying a fine species of grass, which is the principal material they employ for the purpose of erecting this extraordinary work, as well as for additions and repairs. Many trees I have seen borne down with the weight, and others I have observed with their boughs completely covered over. One of the deserted nests I had the curiosity to break down, so as to inform myself of the internal structure of it, and found it equally ingenious with that of the external. There are many entrances, each of which forms a regular street, with nests on both sides, at about two inches distance from each other. The grass with which they build is called the boshman's grass; and I believe the seed of it to be their principal food; though, on examining their nests, I found the wings and legs of different insects.'

L. tridactyla, the three-toed grossbeak, the *guisso balito* of Buffon, has only three toes, two before and one behind. The bill is toothed on the edges: the head, throat, and forepart of the neck, are of a beautiful red, which is prolonged in a narrow band quite to the vent; the upper part of the neck, back, and tail, are black; the wing coverts brown edged with white; quills brown, with greenish edges; and legs a dull red: the wings reach half way on the tail. This species inhabits Abyssinia; where it frequents woods, and is a solitary species. It feeds on kernels of seeds, which it breaks with ease with its bill.

LOXODROM'ICK, *n. s.* Gr. *λοξος*, oblique and *δρόμος*, a course. Oblique sailing.

Loxodromick is the art of oblique sailing by the rhomb, which always makes an equal angle with every meridian; that is, when you sail neither directly under the equator, nor under one and the same meridian, but across them: hence the table of rhombs, or the transverse table of miles, with the table of longitudes and latitudes, by which the sailor may practically find his course, distance, latitude, or longitude, is called *loxodromick*. Harris.

LOYAL, *adj.* Fr. *loyal*, *loi* (law); Ital. **LOYALIST**, *n. s.* } *leale* (le); Span. *leal* (le).
LOY'ALLY, *adv.* } Strictly, attached or obe-
LOY'ALTY, *n. s.* } dient to the laws of one's country, and hence to the sovereign; faithful to vows or engagements of any kind. A loyalist is an adherent to the king or sovereign power. Loyalty (Fr. *loiauté*), fidelity to prince or country; or any object of vows or attachment.

The regard of duty in that most loyal nation overcame all other difficulties. Knolles.

Of *Gloster's* treachery.
And of the *loyal* service of his son,
When I informed him, then he called me sot.

Shakspeare.

Though *loyalty*, well held, to fools does make
Our faith more folly ; yet he that can endure
To follow with allegiance a fallen lord,
Does conquer him that did his master conquer. *Id.*

What though you be *loyal* to earthly kings and
their crowns and kingdoms, yet if you be traitors and
rebels against the King of his church, Jesus Christ,
and the sceptre of his kingdom ; not suffering him
by his laws and officers to reign over you, shall
your *loyalty* towards men excuse your treasons
against the Lord.

Bp. Hall.

The cedar, by the instigation of the *loyalists*, fell
out with the homebians. *Hovel's Local Forest.*

He had never any veneration for the court, but
only such *loyalty* to the king as the law required.

Clarendon.

Hail wedded love ! by thee
Founded in reason *loyal*, just, and pure. *Milton.*
Abdiel faithful found

Unshaken, unseduced, unterrified,
His *loyalty* he kept. *Id.*

For *loyalty* is still the same,
Whether it win or lose the game ;
True as the dial to the sun,

Although it be not shone upon. *Hudibras.*

There Laodamia with Evadne moves,
Unhappy both, but *loyal* in their loves. *Dryden.*

Loyal subjects often seize their prince,
Yet mean his sacred person not the least offence.

Id.

The circling year I wait, with ampler stores,
And fitter pomp, to hail my native shores ;
Then by my realms due homage would be paid,
For wealthy kings are *loyalty* obeyed.

Pope's Odyssey.

The most inviolable attachment to the laws of our
country is every where acknowledged a capital vir-
tue ; and, where the people are not so happy as to
have any legislature but a single person, the strictest
loyalty is, in that case, the truest patriotism.

Hume.

We too are friends to *loyalty*. We love
The being, who loves the law respects his bounds,
And reigns content within them. *Cooper.*

LOYOLA (Ignatius), the founder of the order
of the Jesuits, was born at the castle of Loyola,
in Guipuscoa, in 1491 ; and became first page to
Ferdinand V., king of Spain, and then an officer
in his army. In this last capacity he signal-
ised himself by his valor ; and had his right leg
broken by a cannon ball, at the siege of Pam-
peluna, in 1521. While confined by his wound,
a Life of the Saints was put into his hands,
which determined him to forsake the military
for the ecclesiastical profession. His first de-
vout exercise was to dedicate himself to the
Blessed Virgin as her knight. He then prac-
tised the most severe mortifications for above a
year ; after which he went a pilgrimage to the
Holy Land ; and, on his return to Europe, he
continued his theological studies in the univer-
sities of Spain, though he was then thirty-three
years of age. In 1526, upon commencing
preacher, he was imprisoned at Alcala and Sala-
manca, and impeached before the inquisition.
After this he went to Paris, and laid the founda-
tion of his new order ; the institutes of which he
presented to pope Paul III., who made many
objections to them, but at last confirmed the in-

stitution in 1540. He died in Rome, July 31st
1556, aged sixty-six ; and left his disciples two
celebrated works ; 1. *Spiritual Exercises* ; 2.
Constitutions, or Rules of the Order. But, though
these avowed institutes contain many privileges
obnoxious to the welfare of society, the most ob-
jectionable are contained in the private rules
entitled *Monita Secreta*, which were not disco-
vered till the close of the seventeenth century ;
and most writers attribute these, and even the
Constitutions, to Laynez, the second general of
the order.

LOZENGE, *n. s.* Fr. *losenge*, Gr. *λοζος*,
oblique. A rhomb ; a preserved fruit, or medici-
nal cake, of this form.

Not icladde in silke was he,
But all in flowris and flowrettes,
I painted all with amorettes,
And with *losingis* and seochons,
With birdis, liberdes, and lions,
And othir bestis wrought ful well.

Chaucer. Romaunt of the Rose.

The best builders resolve upon rectangular squares,
as a mean between too few and too many angles ;
and, through the equal inclination of the sides, they
are stronger than the rhomb or *losenge*.

Wotton's Architecture.

They are of two sorts, square and *losenge* ; the
first is used in cutting very broad strokes, the other
for fainter and more delicate lines.

Intson's Elements.

LOZENGE, in heraldry. See HERALDRY.
Though all heralds agree that ladies are to place
their arms on lozenges, yet they differ with re-
spect to the causes that gave rise to it. Plutarch
says, in the life of Theseus, that in Megara, an
ancient town of Greece, the tomb-stones, under
which the bodies of the Amazons lay, were of that
form. S. Petra Sancta says, this shield repre-
sents a cushion, on which women used to sit and
spin. Sir J. Ferne thinks it is formed from the
shield called Tesra, which the Romans finding
unsit for war, allowed women to place their en-
signs upon, with one of its angles always upper-
most.

LOZENGES, among jewellers, are common to
brilliant and rose diamonds. In brilliants they
are formed by the meeting of the skill and star
facets on the bezil ; in the latter by the meeting
of the facets in the horizontal ribs of the crown.
See FACET.

LOZERE, a department of France, is formed
of the ancient district of the Gevaudan and part
of the Cevennes dependent on the former pro-
vince of Languedoc, and takes its name from a
small chain of mountains, being part of those
called the Cevennes mountains. The chief place
is Mende ; it consists of three arrondissements
or 'subprefectures, Mende containing 43,821 in-
habitants ; Florac 39,453 ; Marvejols 50,660 ;
making a total population of 133,934 souls, on
an area of 2421 square miles. It is subdivided
into twenty-four cantons, and 191 communes,
yielding a territorial revenue of 5,904,000 francs,
is in the ninth military division, with two elec-
toral arrondissements, which send two members
to the chamber of deputies. It has a royal court
at Nismes, and a bishopric at Mende. This de-
partment is bounded on the north by those of
Cantal and the Upper Loire ; on the east by

those of Ardeche and the Gard; on the south by the Gard, and on the west by that of the Aveyron. It is intersected by mountains, on which are many lakes abounding in fish, and by valleys and plains of moderate extent and not very fertile. It is divided by nature into three parts, known by their respective names of Montagnes, Causses, and Cevennes; the first of which produces rye, a small quantity of barley and oats and forage; the second, which is the most fertile, yields wheat, small grain, forage, and fruits; the third produces a little rye, chestnuts, and a great quantity of potatoes. The Cevennes mountains extend over part of this department, from one of the peaks of which, the mountain of Lozère, it derives its name; they are covered with snow during a part of the year. Among the plants which grow spontaneously in these mountains, are many that are useful in pharmacy. Great flocks of sheep are reared here, and a great number of mules; during the summer also they receive flocks from Lower Languedoc. In some parts the mulberry tree is cultivated with tolerable success. The temperature of the atmosphere is very variable; at some periods, and at certain degrees of altitude, two or three different temperatures are experienced in the same day. In the north the winter lasts for six months, and in some years even nine; but towards the south it scarcely continues four months. The height of the sun and the numerous waters render this country cold and damp, and this is the common temperature of the department; the winters are usually severe, the spring seasons rainy, the summers often stormy, and the autumns fine only towards the end. This mountainous country is cultivated with oxen, and does not yield a sufficient supply for its inhabitants. There are 21,681 hectares of forests and very few vineyards; the mean produce of every hectare of arable land is ten francs ninety-four centimes.

Here are also mines of iron, lead, antimony, silver, and copper, and quarries of marble, granite, porphyry, and plaster. At Bagnols there are mineral waters. The manufacture of serges, and cotton spinning, is carried on successfully; mines of copper and lead are worked, and various foundries. A number of workmen annually emigrate to the south, to attend the cultivation of the silk-worm, and at the same time to labor at the hay making and the harvest. The people trade in wine, chestnuts, oil, coarse cloths, serges, and cotton yarn.

The principal rivers are the Tarn, the Lot, the Allier, the Gardon, the Chassezal, the Truyere, the Rez, the Tarnon, the Mimente, the Jaute and the Cologne. It is crossed by none of the great royal roads; but fourteen different cross roads serve to promote the communication; goods are chiefly conveyed on mules.

LOZÈRE, *THE*, a high mountain in the Cevennes, situated at the eastern extremity of the department, to which it gives its name. It is about 1473 metres above the level of the sea, and a plat of granite on the top, in shape bearing resemblance to the back of an ass, about ten or twelve miles long, covered with fine pastures and thick forests.

LU, *n. s.* A game at cards. See Loo.

LUB'BARD, *n. s.*

LUB'BER,

LUB'BERLY, *adj. & adv.* } Perhaps from *LOB*, which see. There are also Belg. *lobben*, emasculated, and *luyard*, a lout, probable derivations. A sturdy, lazy fellow. Lubberly is awkward; clownish.

For tempests and showers deceiveth a many,
And lingering lubbers loose many a penie. *Tusser.*

They clap the lubber Ajax on the shoulder,
s if his feet were on brave Hector's breast,
And great Troy shrinking.

Shakspeare. Troilus and Cressida.

A notable lubber thou reportest him to be.

Shakspeare.

I came to Eaton to marry Mrs. Anne Page; and she's a great lubberly boy. *Id.*

These chase the smaller shoals of fish from the main sea into the havens, leaping up and down puffing like a fat lubber out of breath. *Carew.*

Tell how the drudging goblin sweat;

His shadowy flail hath threshed the corn,

That ten day labourers could not end;

Then lies him down the lubber fend. *Milton.*

Merry Andrew on the low rope copies lubberly the same tricks which his master is so dexterously performing on the high. *Dryden.*

Venetians do not more uncouthly ride,
Than did your lubber state mankind bestride.

Id.

How can you name that superannuated lubber?

Congreve.

Yet their wine and their victuals those curmudgeon
lubbards

Lock up from my sight in cellars and cupboards.

Swift.

LUBEC, or LUBECK, a city and port of Germany, in Lower Saxony. It is seated at the conflux of the Trave with the Steckenitz, the Elbe, the Wackentiz, &c., twelve miles from the Baltic, where it has a fine harbour. By the Steckenitz and the Elbe it communicates with the German Ocean. The city lies on the side of a hill, with the Trave, increased by the Steckenitz on the one side, and the Wackentiz on the other; and is strongly fortified with bastions, walls, and ramparts; the last of which are planted with trees, and for man agreeable walk. Lubec, being formerly the chief of the Hanse Towns was very powerful, but a great part of its trade is now transferred to Hamburg; however, it still employs 100 ships, and has a fair share of the Baltic trade. It is about two miles long, and more than one broad. The houses are of stone. Several of the streets have on each side rows of lime trees, with canals in the middle. The chief public structures are the cathedral, the church of St. Mary's, several Lutheran churches, a nunnery with an abbess, and prioress; a poor's house, an alms-house, orphan house, a hospital dedicated to the Holy Ghost, a house in which poor travellers are entertained three days, and then sent forward with a pass, or provided with medicine if ill; a Calvinistic church, and Catholic Chapel. The deputies of the Hanse Towns used to meet in the town house of Lubec. Inhabitants 55,000. It is forty miles north-east of Hamburg. In 1802 Lubec had seventy to eighty merchant vessels of burthen, and in the same year there entered 1368 vessels, and cleared out 1234. It has manufactories of cordage and sail-cloth, sugar refineries and to-

bacco manufactories, and builds merchant vessels. Travemunde is a village of fishermen and pilots, on the north bank of the river; it has a fortress mounting forty cannons. Its port, where vessels above 200 tons lighten to ascend to Lubec, can hold sixty sail. A packet sails between this place and Petersburg.

LUBIENITSKI (Stanislaus), a Polish gentleman, born at Cracow in 1623, and educated by his father. He became a celebrated Socinian minister; and endeavoured to obtain toleration from the German princes for his brethren. His labors, however, were ineffectual; being himself persecuted by the Lutheran ministers and banished from place to place, until at length, in 1675, he was poisoned with his two daughters, his wife narrowly escaping. He wrote, 1. A History of the Reformation in Poland; 2. A History of Comets, from the Flood to 1665: and other works in Latin.

LUBIN (Augustin), according to Dr. Watkins, or Nicholas Lubin according to others, geographer to Louis XIV., and an Augustine monk, was born in 1624. He wrote a description of Lapland; Sacred Geography; and several other works. He died in 1695, aged seventy-one.

LUBIN (Elihard), a Protestant divine, born at Westersted in Germany, and educated at Leipsic. He became professor of poetry in the university of Rostock, in 1595: and in 1605 professor of divinity. He wrote notes on Anacreon, Juvenal, Persius, &c., and several other works; but his most celebrated production is a treatise on the nature and origin of evil, entitled *Phosphorus de Causâ primâ et Naturâ Mali*, printed at Rostock in 1596; in which we have a curious hypothesis to account for the origin of moral evil. He supposed two co-eternal principles; not matter and vacuum, as Epicurus did: but God, and Nihilum or Nothing.

LUBLIN, a considerable town of Poland, capital of the palatinate of the same name, with a citadel, a bishop's see, a university, a Jewish synagogue, and judicial courts. It has three fairs, frequented by merchants from all nations. It is seated on the Bystrzna. Long. 22° 31' E., lat. 51° 26' N.

LUBRICATE, <i>v. a.</i>	} Lat. <i>lubricus</i> . To make smooth, slippery, or of easy movement. Lubricity is smoothness; aptness to move or glide easily; slipperiness; uncertainty; wantonness. Lubric and lubricous are, smooth; slippery; loose; unsteady; wanton. Lubrification and lubrification, the act of making smooth or lubricous.
LUBRICITY, <i>n. s.</i>	
LUBRIC, <i>adj.</i>	
LUBRICOUS,	
LUBRIFICATION, <i>n. s.</i>	

The cause is *lubrification* and relaxation, as in medicines emollient; such as milk, honey, and mallows.

I will deduce him from his cradle through the deep and *lubrick* waves of state, till he is swallowed in the gulph of fatality. Wotton.

A throng
Of short thick sobes, whose thundering volleys float
And roll themselves over her *lubrick* throat
In panting murmurs. Crashaw.

He that enjoyed crowns, and knew their worth,
excepted them not out of the charge of universal

vanity; and yet the politician is not discouraged at the inconstancy of human affairs, and the *lubricity* of his subject. Glanville's Apology.

The judgment being the leading power, if it be stored with *lubricous* opinions instead of clearly conceived truths, and peremptorily resolved in them, the practice will be as irregular as the conceptions. Id. Scepia.

The manifold impossibilities and *lubricities* of matter cannot have the same conveniences in any modification. More.

From the lechery of these fauns, he thinks that satyr is derived from them, as if wantonness and *lubricity* were essential to that poem which ought in all to be avoided. Dryden.

Why were we hurried down

This *lubrick* and adulterate age;

Nay, added fat pollutions of our own,

T' increase the steaming ordures of the stage? Id.

A state of tranquillity is never to be attained, but by keeping perpetually in our thoughts the certainty of death and the *lubricity* of fortune.

L' Etrange.

Both the ingredients are of a *lubricating* nature; the mucilage adds to the *lubricity* of the oil, and the oil preserves the mucilage from inspissation.

Ray on Creatim.

A twofold liquor is prepared for the inunction and *lubrification* of the heads of the bones; an oily one, furnished by the marrow; a mucilaginous, supplied by certain glandules seated in the articulations.

Id.

The parts of water being voluble and *lubricous*, as well as fine, it easily insinuates itself into the tubes of vegetables, and by that means introduces into them the matter it bears along with it.

Woodward's Natural History.

There are aliments which, besides this *lubricating* quality, stimulate in a small degree.

Arbutnot on Aliments.

The patient is relieved by the mucilaginous and the saponaceous remedies, some of which *lubricate*, and others both *lubricate* and stimulate. Sharp.

To trace in Nature's most minute design

The signature and stamp of power divine,

Contrivance intricate, expressed with ease,

Where unassisted sight no beauty sees;

The shapely limb and *lubricated* joint,

Within the small dimensions of a point,

Muscle and nerve miraculously spun;

His mighty work, who speaks and it is done.

Covpr.

LUCANIA, a country of Italy, and a part of Magna Græcia; bounded on the north by the Silarus, by which it is separated from the Picentini, and by the river Bradanus, by which it is parted from the Apuli Peucetii; on the south by the Laus, which separated it from the Brutii; on the east by the Sinus Tarentinus; and on the west by the Tuscan Sea.

LUCANUS (Marcus Annæus), a Latin poet, born at Corduba in Spain, about A. D. 39. He was the son of Annæus Mela, the youngest brother of Seneca; and was conveyed to Rome at the age of eight months. At Rome he was educated under the Stoic Cornutus, so warmly celebrated by his disciple Persius the satirist, who was the intimate friend of Lucan. In the close of his education, Lucan is said to have passed some time at Athens. On his return to Rome he rose to the office of questor, before he had attained the legal age. He was afterwards enrolled among the augurs; and married a lady of

noble birth. Lucan had for some time been admitted to familiarity with Nero, when the emperor chose to contend with him for poetical honors by the public recital of a poem he had composed on Niobe. Lucan had the hardness to repeat a poem on Orpheus, in competition with that of Nero; and the judges of the contest were just and bold enough to decide against the emperor. Hence Nero became the persecutor of his successful rival, and prohibited him to produce any poetry in public. The well known conspiracy of Piso against the tyrant soon followed; and Tacitus concludes that Lucan engaged in the enterprise from the poetical injuries he had received. His firmness and intrepidity are very forcibly displayed in the picture of his death which Tacitus has given us. He was condemned to have his veins opened, as his uncle Seneca had before him; and, 'while his blood issued in streams, perceiving his feet and hands to grow cold and stiffen, and life to retire by little and little from the extremities, while his heart was still beating with vital warmth, and his faculties nowise impaired, he recollected some lines of his own, which described a wounded soldier expiring in a manner that resembled this. These lines he rehearsed; and they were the last words he ever uttered.' The critics differ concerning the verses of the *Pharsalia* which the author repeated. Some think the verses were v. 810 to 814, lib. ix., but Lipsius contends, that the passage occurs in lib. iii. v. 635—638; thus translated by Mr. Rowe:

No single wound the gaping rupture seems,
Where trickling crimson swells in slender streams;
But, from an opening horrible and wide,
A thousand vessels pour the bursting tide:
At once the winding channel's course was broke;
Where wandering life her mazy journey took;
At once the currents all forgot their way,
And lost their purple in the azure sea.

Such was the death of Lucan, before he had completed his twenty-seventh year. His wife, Polla Argentaria, is said to have transcribed and corrected the first three books of his *Pharsalia* after his death. Quintilian disputes the title of Lucan to be classed among the poets; and Scalliger says, that he seems rather to bark than to sing. But the most elevated poetic spirits have been his warmest admirers; in France he was idolised by Corneille, and in England translated by Rowe. The severest censures on Lucan have proceeded from those who have unfairly compared his language to that of Virgil; but how unjust is such a comparison! How differently should we think of Virgil as a poet, if we possessed only the verses which he wrote at that period of life when Lucan composed his *Pharsalia*! In the disposition of his subject, in the propriety and elegance of diction, he is undoubtedly far inferior to Virgil; but, if we attend to the bold originality of his design, and to the vigor of his sentiments; if we consider the *Pharsalia* as the rapid and uncorrected sketch of a young poet, executed in an age when the spirit of his countrymen was broken, and their taste in literature corrupted; it may be justly esteemed one of the most noble and most wonderful productions of the human mind. Lucan wrote

several poems, but none remain besides his *Pharsalia*.

LUCANUS, the stag-beetle, in zoology, a genus of insects of the order coleoptera. The antennæ end in a club or knob, which is compressed or flattened on one side, and divided into short laminæ resembling the teeth of a comb; the jaws are porrected or advanced before the head, and are dentated. See ENTOMOLOGY.

L. cervus is the largest as well as the most singular species. It has two large moveable maxillæ, resembling the horns of a stag, which project from its head, and have acquired it the appellation of stag-beetle. Those maxillæ, broad and flat, equal to one-third of its length, have in the middle, towards their inner part, a small branch, and at their extremity are forked. They have also several small teeth throughout their length. The head that bears these maxillæ is irregular, very broad, and short. The thorax is something narrower than the head and body, and margined round. The elytra are very plain, without either streaks or lines. The whole animal is of a deep brown color. It is commonly found upon the oak, but is scarce in the neighbourhood of London; and, though the largest of coleopterous insects to be met with in this part of the world, it is much smaller than those of the same species that are found in woody countries. It is strong and vigorous, and its horns, with which it pinches severely, are carefully to be avoided. The jaws are sometimes as red as coral, which gives this insect a very beautiful appearance; the female is distinguished by the shortness of the jaws, which are not half so long as those of the male. The females deposit their eggs in trunks of decayed trees, such as the oak and the ash. The larvæ lodge under the bark, and in the hollow of old trees, which they eat into and reduce into fine powder, and there transform themselves into chrysalids. They are common in Kent and Sussex, and are sometimes met with in other parts of England. The porrected jaws are particularly useful to these animals, in stripping off the bark from trees, and affixing themselves thereby to the tree, while they suck with their trunk the juice that oozes from it.

LUCARIA, from Lat. *lucus*, a grove, a feast celebrated at Rome, on the 18th of July, in memory of the flight of the Romans into a wood, where they found an asylum from the Gauls. This wood was situated between the Tiber and the Via Salaria. On this festival, Plutarch informs us, it was customary to pay the actors with the money arising from the felling of wood. This money was called *lucar*.

LUCAS (Richard), D. D., a learned English divine, born in 1648, and educated at Oxford; after which he took orders, and was for some time master of the free school at Abergavenny. Being esteemed an excellent preacher, he became vicar of St. Stephen's Coleman Street, and lecturer of St. Olave's in Southwark. In 1696 he was installed prebendary of Westminster. His sight began to fail in his youth, and he totally lost it in his middle age. He was greatly esteemed for his piety and learning; and published several works, particularly; 1. Practical

Christianity; 2. An Enquiry after Happiness; 3. Several Sermons; 4. A Latin translation of the whole Duty of Man. He died in 1715.

LUCAS JACOBS, or LUCAS VAN LEYDEN, an eminent artist, called also Hugense, was born at Leyden in 1494. He received his first instructions in painting from his father Hugues Jacobs: but completed his studies under Cornelius Engelbrecht. A few years before his death, it is said that during a journey through Zealand and Brabant a painter of Flushing, envious of his great abilities, gave him poison at an entertainment, which, though slow, was fatal in its effects, and put an end to his life, after six years languishing under its cruel influence. Others, however, attribute his death to his incessant industry. The superiority of his genius manifested itself very early; for his works, even when but nine years of age, were so excellent as to excite the admiration of all contemporary artists; and, when he was about fifteen, he painted a St. Hubert which gained him great applause. His tone of coloring, Mr. Pilkington observes, is good; his attitudes are well chosen; his figures have a considerable expression in their faces; and his pictures are very highly finished. He endeavoured to proportion the strength of his coloring to the different degrees of distance in which his objects were placed: for, in that early time, the true principles of perspective were but little known. In the town-hall at Leyden his finest picture, the Last Judgment, is preserved with great care; the magistrates having refused very large sums for it. Lucas painted not only in oil, but also in distemper and upon glass. Nor was he less eminent for his engraving. The strokes are as delicate upon the objects in the front, as upon those in the distances; and this want of variety, joined with the feebleness of the masses of shadow, gives his engravings, with all their neatness, an unfinished appearance. He was attentive to the minutie of his art. He gave great expression to the heads of his figures; but in his works the same heads are too often repeated. The hands and feet are rather mannered than correct; and, when he attempted to draw the naked figure, he succeeded but indifferently. He made the folds of his draperies long and flowing; but his female figures are too often excessively loaded with girdles, bandages, and other ornamental trappings. He engraved on wood, as well as on copper; but his works on the former are not numerous. They are, however, very spirited; though not equal, upon the whole, to those of his friend Albert. Lucas's prints are pretty numerous, but seldom met with complete. The following are among the principal: 1. Mahomet sleeping, with a priest murdered by his side, and another figure stealing his sword; a middling-sized upright plate, 1508. 2. An ecce homo, a large plate, lengthwise, 1510. 3. The crucifixion on Mount Calvary, 1510. 4. The wise men's offering, on Mount Calvary, 1513. 5. Return of the prodigal son, middling-sized, lengthwise, 1518. 6. The dance of Magdalen, large, lengthwise, 1519. 7. His own portrait, small, upright, 1525. 8. David playing before Saul, a middling-sized, upright, very fine print. 9. A print called Ulespiegle, which is the scarcest

of all his works. It was in the collection of the king of France; and said by Marolles to be unique; but Mariette had also an impression of it. It represents a travelling bag-piper with his family, consisting of his wife, seven children, a little dog, &c., in a singular group. This rare print is dated 1520, and has been sold for sixteen louis d'ors. It is nearly seven inches and a half high by four and three-quarters broad; and has been twice copied.

LUCCA, DUCHY OF, is a small principality created a duchy by the congress of Vienna in 1815, and given in full sovereignty to her majesty the Infanta Maria Louisa of Spain, and her descendants in the direct male line. It is encompassed by Tuscany, Modena, and the Mediterranean, and contains about 430 square miles. Much of it is mountainous, and its scenery is picturesque and beautiful, while the industry of the inhabitants has covered numerous hills to their very summits with vines, olives, chestnuts, and mulberry trees. The atmosphere has all the mildness and serenity of Italy, and the delightful plain on which the capital stands, and the valleys in other parts of the duchy, are composed of black alluvial soil, abounding with rich pasturage. Some grain is produced, but wine, oil, and silk, are the chief products. Inhabitants 124,000.

Lucca, the capital, is situated near the southern confines, on the river Serchio. It is about three miles in circumference. Its ramparts are planted with trees. Several of the churches are built of Carrara marble. The cathedral and St. Michael's are the most elegant. The princess's palace is a large structure surrounded with trees, and many of the nobility have elegant mansions in the vicinity. Here are a university, an academy of arts and sciences, and a celebrated establishment for the education of females, of noble birth. There are likewise manufactures of cloth and silk, but the principal trade is in oil. The baths of Lucca are on the banks of the Serchio near the town and much frequented. The religion is Catholic, the army about 800, and the yearly income of the duchy nearly £65,000. The inhabitants, who are a moral and industrious race, amount to about 18,000.

LUCE, *n. s.* Lat. *lupus*. A pike full grown

Ful many a fat partrich had he in mewe,

And many a breme and many a luce in stew.

Chaucer. Cant. Tales.

They give the dozen white lukes in their coast.

Shakspeare.

LUCE, in ichthyology. See ESOX.

LUCENA, a large inland town of Cordova, in the south of Spain. It contains three infirmaries a foundling hospital, and eleven poor houses; and it has manufactures of linen, cloth, and soap, besides the adjacent salt works of Jarales. Population 12,000: thirty-two miles S. S. E. of Cordova. Long. 4° 29' W., lat. 37° 32' N. There are two other small towns of this name in Andalusia, and Valencia.

LU'CENT, *adj.*

LU'CID, *adj.*

LU'CIDITY, *n. s.*

LU'CI'FEROUS, *adj.*

LU'CI'FE'OUS.

Lat. *lucens*, *lucidus*; Fr.

lucide. Bright; shining;

resplendent; clear; pel-

lucid; applied metapho-

rically to clearness.

brightness of intellect as opposed to insanity: luciferous is giving light: lucific, making or creating light.

The long dissensions of the two houses, which, although they had had *lucid* intervals and happy pauses, yet they did ever hang over the kingdom, ready to break forth. *Bacon.*

I meant the day-star should not brighter rise,
Nor lend like influence from his *luculent* seat. *Ben Jonson.*

A spot like which perhaps
Astronomer in the sun's *luculent* orb,
Through his glazed optick tube yet never saw. *Milton.*

Over his *lucid* arms
A military vest of purple flowed;
Livelier than Malibœan. *Id.*

On the fertile banks
Of Abana and Pharpar, *lucid* streams. *Id.*
The experiment is not ignoble, and *luciferous*
enough, as shewing a new way to produce a volatile
salt. *Boyle.*

Some beams of wit on other souls may fall,
Strike through and make a *lucid* interval;
But Shadwell's genuine night admits no ray,
His rising fogs prevail upon the day. *Dryden.*
It contracts it, preserving the eye from being in-
jured by too vehement and *lucid* an object, and again
dilates it for the apprehending objects more remote in
a fainter light. *Ray.*

When made to converge, and so mixed together;
though their *lucifick* motion be continued, yet by in-
terfering, that equal motion, which is the colorifick,
is interrupted. *Grew.*

I believed him in a *lucid* interval, and desired he
would please to let me see his book. *Tatler.*

A few sensual and voluptuous persons may, for a
season, eclipse this native light of the soul; but can
never so wholly smother and extinguish it, but that,
at some *lucid* intervals, it will recover itself again,
and shine forth to the conviction of their conscience.
Bentley.

The pearly shell its *lucid* globe unfold,
And Phœbus warm the ripening ore to gold. *Pope.*

On the transparent side of a globe, half silver
and half of a transparent metal, we saw certain
strange figures circularly drawn, and thought we
could touch them, till we found our fingers stopped
by that *lucid* substance. *Gulliver's Travels.*

Beneath the hedge or near the stream,

A worm is known to stray,

That shows by night a *lucid* beam,

Which disappears by day. *Couper.*

Nymphs! on that day ye shed from *lucid* eyes,
Celestial tears, and breathed ethereal sighs!
When Richman reared, by fearless haste betrayed,
The wiry rod in Nieva's fatal shade. *Darwin.*

The sun-born blood suffused her neck, and threw
O'er her clear nut-brown skin a *lucid* hue,
Like coral reddening through the darkened wave,
Which draws the dæver to the crimson cave. *Byron.*

LUCERA, an inland town of Naples, in the
Capitanata. Strabo says, 'It had lost much of
its splendor in the time of Augustus.' The only
relic of Roman architecture now to be seen is a
tower in the middle of the castle; but medals
are frequently found. It is the see of a bishop.
Population 8400: thirty-two miles north-east of
Benevento.

LUCERES, in Roman antiquity, the third in
der of the three tribes into which Romulus
divided the people, including foreigners; so

called from the lucus or grove where Romulus
opened an asylum.

LUCERIA, in ancient geography, a town of
Italy, in Apulia; which in Strabo's time still ex-
hibited marks of Diomed's sovereignty in those
parts. It is called by Ptolemy Nuceria; now
Nocera de Pagani, in Naples.

LUCERNA, a small town and citadel of Pied-
mont. Population 1200; six miles south of
Pinerolo.

LUCERNE, a canton in the heart of Switzer-
land, adjacent to those of Zurich, Schweiz, and
Unterwalden. Its superficial extent is about
740 square miles. It is one of the flattest por-
tions of Switzerland, the north consisting of
large plains, while the south, though less level,
contains only a part of the mountains that border
on the lake of Lucerne. Both the soil and cli-
mate are favorable to agriculture, and it is
watered by the Reuss, Emme, Entlen, Weger,
Wyna, Sur, and Eschenbach. It contains several
small lakes, such as Sempach, Mauern, Rei-
chen, and the Red Lake. Cattle, horses, goats,
sheep, and hogs are reared, as well as corn, in
abundance; as also flax and hemp, vines, &c.
Several of the towns drive a good carrying trade.
Lucerne is the most powerful of the Catholic
cantons, and a papal nuncio has resided at the
capital ever since the reformation. The canton
is divided into the five districts of Lucerne,
Entlibuch, Willisau, Sursee, and Hochdorf;
each district is subdivided into four quarters.
Population 87,000.

LUCERNE, the capital of the canton of that
name, is situated on the Reuss, where it issues
from the lake of Lucerne. The town stands on
both sides of the river, over which are four
bridges. The view from these bridges is very
picturesque. The town stands on a gentle
eminence, at the foot of Mount Pilate, surrounded
by a wall and towers, and contains several hand-
some edifices, and neat groups of houses on the
lake. The chief public buildings are the town-
hall, watch-tower, and arsenal, in all of which
there are curious antiquities. The churches are
of Gothic architecture; and there are in the
town several monasteries and convents. Here
is also a college or high school, belonging form-
erly to the Jesuits, who were restored in the year
1819, contrary to the wishes of many of the in-
habitants. There are various collections of
books, paintings, and curiosities in Lucerne; but
the most remarkable is the model or map en
relief of Switzerland, by general Pfyffer. Its
commerce is chiefly in corn, and a transit busi-
ness. Population nearly 7000: forty-two miles
east of Berne, and sixteen west by north of
Schweitz.

LUCERNE, called also the lake of Waldstadte,
a lake of Switzerland, between the cantons of
Unterwalden, Lucerne, Schweiz, and Uri. Its
length is about twenty-five English miles, but its
breadth is unequal, as it consists of a number of
detached parts, some of them of considerable
size, and forming in a manner separate lakes.
The largest of them take their names from the
chief places on their banks; thus the lake of
Lucerne Proper, the lake of Alpnach, the lake of
Stanz, and the lake of Uri. Its general breadth

is two, three, or four miles; the elevation of its surface above that of the sea 1380 feet; and its depth is in some places 600 feet. It is the largest lake in the interior of Switzerland, and, though its banks are not enlivened by towns or luxuriant vegetation, the scenery is striking. From different spots on the surface of the lake may be counted more than twenty-five mountains, comprising some of the highest of the Alps, such as the Pilatusberg, Mount Righi, and the Furca. While these form promontories and cliffs, which increase the beauties of the scenery, they give rise to blasts, which sometimes render it dangerous to navigate the lake.

LUCIA (St.), or ST. ALOUSIE, one of the Caribbee Islands, is about twenty-two miles long and twelve broad; Carenage, the chief town, being in lat. $13^{\circ} 57' N.$, and long. $61^{\circ} 7' W.$ It was first settled by the French in 1650; but was reduced by the English in 1664, who evacuated it in 1666. The French immediately resettled the island, but were again driven away by the Caribs. As soon as the savages were gone, the former inhabitants returned for a short time; but, being afraid of falling a prey to the first privateer that should visit their coasts, they removed to other French settlements that were stronger, or might be better defended. There was then no regular colony at St. Lucia; it was only frequented by the inhabitants of Martinico, who came thither to cut wood, and to build canoes, and who had considerable docks on the island. In 1718 it was again settled by the French; but four years after it was given by the British court to the duke of Montagu, who was sent to take possession of it. This occasioned some disturbance between the two courts; which was settled, however, by an agreement made in 1731, that, till the respective claims should be finally adjusted, the island should be evacuated by both nations, but that both should have wood and water there. This agreement furnished an opportunity for private interest to exert itself. The English no longer molested the French in their habitations; but employed them as their assistants in carrying on with richer colonies a smuggling trade, which the subjects of both governments thought equally advantageous. This trade continued more or less considerable till the treaty of 1763, when St. Lucia was ceded to the crown of France. After that time the colony flourished. In the beginning of 1772 the number of white people amounted to 2018 souls, men, women, and children; that of the blacks to 663 freemen, and 12,795 slaves. The cattle consisted of 928 horses and mules, 2070 horned cattle, and 3184 sheep and goats. There were thirty-eight sugar plantations, which occupied 978 pieces of land; 5,395,889 coffee-trees; 1,321,600 cocoa plants; and 367 plots of cotton. There were 706 dwelling places. The annual revenue at that time was about £175,000, which, according to the abbé Raynal, must have increased one-eighth yearly for some time. It was taken by the British fleet, under admirals Byron and Barrington, in 1779, but restored to France at the peace of 1783. It was again taken by the British troops, under Sir Charles Grey and Sir John Jervis, in 1794; but in 1795 the French,

negroes, and mulattoes rose, and were so successful, that in April, 1795, they were in possession of the whole island, except *Morne Fortune* which surrendered in May. But on the 26th of May, 1796, that fort and the whole island were recovered by general Abercrombie, after an obstinate resistance; and 2000 men taken prisoners. It was ceded to the French by the treaty of peace in 1801-2, and retaken in the late war, which began the year after. The soil of St. Lucia is tolerably good, even at the sea side; and is much better further up the country. The whole of it is capable of cultivation, except some high and craggy mountains, which bear evident marks of volcanoes. In one deep valley there are still eight or ten ponds, the water of which boils up, and retains some of its heat at the distance of 6000 toises from its reservoirs. The air in the inland parts is unwholesome; but becomes less noxious as the woods are cleared. On some parts of the coast the air is still more unhealthy, by the waters of the rivers, which spring from the foot of the mountains, not having sufficient slope to wash down the sands with which the ocean stops up their mouths.

Le Carenage, the chief place of the island, is about the middle of the west side. Nature has here formed a spacious and secure harbour, in which thirty sail of the line may lay in perfect safety during the hurricane months, and the largest ships may heave down by the shore. The entrance is so narrow that but one ship can enter at a time, and the wind blowing constantly out, she must be towed or warped in.

LUCIA (St.), one of the Cape de Verd Islands, is three leagues from St. Vincent, the two islands having three or four rocky inlets between them, is twenty-four miles long, mountainous, and uninhabited. On the south-east is a good road within two small islands called Itound and White Islands. On the west side there is no water. It abounds with goats, sea and land fowl, tortoises, &c.

LUCIAN, or LUCIANUS, a celebrated Greek author in the first century, born at Samosata, in the reign of Trajan. He studied law, and practised some time as an advocate; but afterwards commenced rhetorician. He lived to the time of Marcus Aurelius, who made him register of Alexandria in Egypt; and, according to Suidas, he was at last worried by dogs, in his ninetieth year, A. D. 180. His Dialogues and other works are written in elegant Greek. In these he has joined the useful to the agreeable, instruction to satire, and erudition to elegance. He has been censured as an impious scoffer at religion; but surely religion consists neither in the theology of the Pagan poets, nor in the extravagant opinions of philosophers, which he justly ridicules.

LUCIANISTS, or LUCANISTS, a religious sect so called from Lucianus, or Lucanus, a heretic of the second century, a disciple of Marcion, whose errors he followed. Epiphanius says he abandoned Marcion, teaching the people not to marry, and yet other authors mention that he held this error in common with Marcion and other Gnostics. He denied the immortality of the soul, asserting it to be material.

LUCIFER, in astronomy, is the bright planet

Venus, which either goes before the sun in the morning, and is our morning star, or in the evening follows the sun, and then is called *Hesperus*, or the evening star.

LUCIFER, in ecclesiastical history, a celebrated bishop of Cagliari, in Sardinia, who gave rise to a schism, by not admitting the decree of the council of Alexandria, A. D. 362, for receiving the Arian bishops, who recanted their errors. He was banished by Constantius for defending the Nicene doctrine concerning the Trinity. He died A. D. 370. His works were published at Venice.

LUCIFERA, in mythology, a surname given to Diana, under which title she was invoked by the Greeks in childbed. She was represented as covered with a large veil, interspersed with stars, bearing a crescent on her head, and holding in her hand a lighted flambeau.

LUCIFERIANs, a religious sect, who adhered to the schism of Lucifer. See **LUCIFER**. St. Augustine intimates that they believed the soul, which they considered as of a material nature, to be transmitted to the children from their fathers. They increased greatly in Gaul, Spain, Egypt, &c. There were but two Luciferian bishops, but a great number of priests and deacons. They bore a great aversion to the Arians.

LUCILIUS (Caius), a Roman knight and Latin poet, was born at Suessa in Italy, about 140 B. C. He served under Scipio Africanus, in the war with the Numantines, and was in great favor with that celebrated general, and with Lælius. He wrote thirty books of satires, and some learned men ascribe the invention of satire to him; but M. Dacier insists, that Lucilius only gave a more elegant turn to that kind of poetry, than his predecessors Ennius and Pacuvius had done. From Horace, who refers to them several times in his own satires, it appears that he imitated the old Greek comedians in marking out by his censure individuals notorious for their vices, even those of the very highest rank. Though superior to his poetical predecessors at Rome, and though he wrote with great roughness and inelegance, he gained many admirers. By Horace he is compared to a river which rolls upon its waters precious sand, accompanied with mire and dirt. Of his thirty books of verses only a few scattered fragments are come down to modern times. His fragments have been carefully collected by Francis Douza at Leyden, in 1599, with notes.

LUCINA, a goddess among the Romans, who presided over women in labor. Some take her to be Diana, others Juno, others make her a distinct goddess, daughter of Jupiter and Juno. She is called Lucino, because she brought children to light; from the Latin *lux*, light. The Greeks called her *Ilithyia*.

LUCK, *n. s.* } Sax. *luc*; Goth. *lucka*;
LUCKILY, *adv.* } Belg. *luk*; Teut. *gluck*,
LUCKLESS, *n. s.* } *glucke*; a Gr. *γλυκε*, dulce,
LUCKLESS, *adj.* } Minshew. Fortune, particularly good fortune;
LUCKY, }
 chance; accident: luckily is happily; by good hap or fortune: luckiness, happiness; happy hit: luckless, unhappy, unfortunate: lucky, fortunate, 'happy by chance,' if such luck there be.

Glad of such *luck*, the *luckless lucky* maid
 A long time with that savage people staid,
 To gather breath in many miseries. *Spensor.*

But I more fearful, or more *lucky* wight,
 Dismayed with that deformed, dismal sight,
 Flest fast away. *Færie Queene.*

Farewel, good *luck* go with thee.

Shakspeare:

I did demand what news from Shrewsbury,
 He told me that rebellion had ill *luck*,
 And that young Harry Percy's spur was cold.

Id.

Never shall my thoughts be base,
 Though *luckless*, yet without disgrace.

Suckling.

He forced his neck into a noose,
 To shew his play at fast and loose;
 And, when he chanced to escape, mistook,

For art and subtlety, his *luck*. *Hudibras.*

Some such method may be found by human industry or *luck*, by which compound bodies may be resolved into other substances than they are divided into by the fire. *Boyle.*

That part of mankind who have had the justice, or the *luck*, to pass, in common opinion, for the wisest have followed a very different scent.

Temple.

It is the pencil thrown *luckily* full upon the horse's mouth, to express the foam, which the painter with all his skill could not form. *Dryden's Dufresnoy.*

What else but his immoderate lust of power,
 Prayers made and granted in a *luckless* hour.

Dryden.

He who sometimes lights on truth, is in the right but by chance; and I know not whether the *luckiness* of the accident will excuse the irregularity of his proceeding. *Locke.*

The guests are found too numerous for the treat,
 But all, it seems, who had the *luck* to eat,
 Swear they ne'er tasted more delicious meat. *Tate.*

Such, how highly soever they may have the *luck* to be thought of, are far from being Israelites indeed. *South.*

Perhaps some arm more *lucky* than the rest,
 May reach his heart, and free the world from bondage. *Addison's Cato.*

It happens *luckily* for the establishment of a new race of kings upon the British throne, that the first of this royal line has all high qualifications. *Addison.*

As little reckt I sorrow's power,

Until the flowery snare

O' witching love, in *luckless* hour,

Made me the thrall o' care. *Burns.*

Patron of all those *luckless* brains,

That to the wrong side leaning,

Indite much metre with much pains,

And little or no meaning. *Cowper.*

LUCKNOW, a district of the province of Oude, Hindostan, situated between the twenty-sixth and twenty-seventh degrees of north latitude. The soil, though in general sandy, when well watered, is very productive, and yields cotton, and all the grains of India except rice. Here also abound excellent vines, mulberries, and oranges. The inhabitants are intelligent, and considerably cultivated.

LUCKNOW, a city of Hindostan, capital of the province of Oude, is situated on the south bank of the Goomty, which falls into the Ganges between Binaras and Ghazypore, and is navigable for middling-sized boats at all seasons of the year. It is an ancient city, but, after being for a

long time the residence of the nabobs of Oude, was abandoned by Shujau ad Dowleh, after the battle of Baxar, for Fyzabad, which he made his capital. On his death, however, in 1774, his successor returned to Lucknow, and expended large sums on his palace and the other public buildings. He also added an iron bridge across the river. The streets are still narrow and very irregular. In the vicinity, however, is the dwelling of the British resident, and other European inhabitants; and adjoining to the palace is the cantonment of one of the East India Company's regiments. The gilt domes of the mosques, and the mausoleum of Asoph ad Dowleh, give it a showy appearance; but the situation of the place is bad, and the soil is a white sand, which, in the hot weather, is driven about by the wind, and penetrates every thing. The nabob's gardens are handsome. His army has been much reduced; but few princes can make a greater display of pomp on state occasions; and his repositories and library contain a number of curiosities. In the vicinity are numerous Hindoo and Mahomedan sacred tombs. Population about 300,000. Long. 80° 55' E., lat. 26° 24' N.

LUCKNOWTY. See **GOUR.**

LUCKPUT BUNDER, a town of Hindostan, province of Cutch. It is situated about thirty miles up the Lory River, which is only navigable by small vessels. It is defended by a good fort, and belongs to the Ameers of Sind. Long. 68° 58' E., lat. 23° 47' N.

LUCKY BAY, a bay on the south coast of New Holland, in the Archipelago de Recherche.

LUCKYPORE, a town of Bengal, in the district of Tipperah, is situated inland from the east bank of the Megna, with which it communicates by a small river. The East India Company have an extensive factory here, for the manufacture or purchase of baftahs and other coarse cotton cloths.

LUCON, or **LUCONIA,** the most considerable of the Philippine Islands, in the Indian Seas, is so called from a native word *luson*, written *luçon* by the Spaniards, the name of a kind of pestle used by the natives to free their rice from the husk, and which the first discoverers took for a war club. The Indians, or Malays, of the Philippines are divided into many nations, the two principal of which are the Tagalls, in Luconia, and the Bissayas, in the central islands. The Tagalls believe themselves to be descended from a colony of Bornean Malays: one writer makes the Malay population of Luconia, subject to the Spaniards, 1,500,000.

The island is of very irregular shape, the southern extremity being formed of a number of peninsulas, making two great bays, that of Manilla on the west, and of Lampoon on the east. A great portion of the tract between these bays is occupied by the lake of the bay, forty-five leagues in circuit, and which is formed by the waters of fifty to sixty rivers and rivulets, and empties itself into Manilla Bay, by the river Passig. The lake is navigable by large boats, and in it is an island nine leagues in circuit, which, though very fertile, is uninhabited. It would appear that the lake has a communication with some of the volcanoes that surround it, its

waters being at times strongly impregnated with sulphur, which destroys the fish. There are also many hot springs in its vicinity. The shores of the lake to the feet of the mountains are well cultivated, producing abundance of rice, indigo of a superior quality, pepper, cocoa, and areca nuts, and logwood. The uncultivated plains abound in wild buffaloes, deer, and hogs.

Luconia produces iron, copper, and gold, of which the latter only is collected in small morsels. The east coast is very mountainous and little productive, the strong easterly winds and atmosphere of the sea destroying vegetation. The mountains on this side are chiefly occupied by the natives, who have fled from the Spanish dominion. The north-east point of the island is Cape Engano, and the north-west Cape Bojador. Manilla, the chief city of the island, and of the Spanish possessions, is situated near the mouth of the Passig, which issues from the lake of the bay. See **MANILLA** and **PHILIPPINES**.

LU'CRE, n. s.

LU'CRATIVE, adj. } Latin *lucrum*. Gain; profit; pecuniary emolument: generally used in a bad sense: yet lucrative (of which lucriferosus is an obsolete synonyme) does not partake this character; as it is quite clear that being lucrative is not the least recommendation of numerous pursuits.

LUCRIFEROUS. } Taking the oversight thereof, not by constraint, but willingly; not for filthy lucre, but of a ready mind. *1st Pet. v. 2.*

Malice and lucre in them
Have laid this woe here.

Shakspeare. Cymbeline.
The trade of merchandize, being the most lucrative, may bear usury at a good rate: other contracts not so. *Bacon.*

Should we not farther, honestly comparing things, easily discern, that it is no such indispensable business, but rather indeed some base dotage in lucre, some inveigling bait of pleasure, some bewitching transport of fancy, that crosseth our devotion. *Barrow.*

They all the sacred mysteries of Heaven,
To their own vile advantages shall turn
Of lucre and ambition. *Milton's Paradise Lost.*
Silver was afterwards separated from the gold, but so small a quantity, that the experiment, the costs and pains considered, was not *lucriferous*. *Boyle.*

A soul supreme in each hard instance tried,
Above all pain, all anger, and all pride,
The rage of power, the blast of publick breath,
The lust of lucre, and the dread of death. *Pope.*
The disposition of Ulysses inclined him to pursue the more dangerous way of living by war, than the more lucrative method of life by agriculture. *Broome.*

Her lucrative task she pursues,
And pilfers with so much address,
That none of their odour they lose,
Nor charm by their beauty the less. *Comper.*

LUCRETIA, a celebrated Roman lady, the wife of Tarquinius Collatinus. Being ravished by Sextus, the eldest son of Tarquin II., she stabbed herself, A. A. C. 509. Her dead body, with the bloody poniard, exposed to the senate, was the signal of Roman liberty; the expulsion of the Tarquins, and abolition of the regal dignity, was instantly resolved on, and carried into execution. See **ROME**.

LUCRETIVS CARUS (Titus), a celebrated Latin poet, descended of an ancient and noble Roman family. He studied at Athens, where he became an Epicurean, and acquired great reputation by his learning and eloquence; but in the flower of his age fell into a frenzy, occasioned by a philtre given him by his wife, who was distractedly fond of him. Lucretius, during the intervals of his madness, versified the doctrines of Epicurus, and composed his six books *De Rerum Naturâ*, which are still extant. It is said that he killed himself in a fit of madness, A. A. C. 54, when fifty-one years old. The most correct edition of Lucretius is that of Simon de Coline. His celebrated poem *De Naturâ Rerum*, though among the earliest classics given to the world by the invention of printing, though published by many successive editors, and though translated into all the modern languages of Europe, has not, till very recently, been purified with much success from innumerable corrupt readings which had accumulated through time and ignorance, to the obscurity and essential injury of the text. This was the more to be lamented, since the originality and superlative beauty of this poet are not the only attractions he possesses. It is a fact, says the late Dr. Mason Good, no less remarkable than true, that the inductive method of Bacon, part of the sublime physics of Newton, and various of the chemical discoveries of our own days, were to a surprising degree anticipated, as to their principles and many important results, by the philosophical poet of Rome. The principal editions of Lucretius are,

Ferrandus . . .	Brixia . . .	fol.
Fridenberger . .	Verona . .	fol. 1486.
Aldus . . .	Venet . .	4to. 1500.
Ibid . . .	Ibid . . .	8vo. 1515.
Baptista Pii . .	Bonon . .	fol. 1511, &c.
Lambini . . .	Paris . .	4to. 1563, &c.
Ibid . . .	Ibid . . .	8vo. 1565, &c.
Gisanii . . .	Antwerp .	8vo. 1563, &c.
Ibid . . .	Lug. Bat.	8vo. 1595.
Fabri . . .	Salmur . .	4to. 1662.
Creechii . . .	Oxon . .	8vo. 1695.
Tonson . . .	Lond. . .	fol. 1712.
Havercamp . .	Lug. Bat.	4to. 1725.
Wakefieldi . .	Bipont . .	8vo. 1782.
Eichstadtii . .	Lond. . .	4to. 1796.
	Lipsia . .	8vo. 1801.

Of these editions we would particularly specify those of Tonson, Havercamp, and Wakefield. The latter is a very beautiful and correct work, in 3 vols. 4to. The small paper copies sold at £5 5s. and the large paper, of which only fifty copies were taken off for subscribers, at £20 each. This is now an extremely scarce work; as the principal part of the edition was consumed by fire. This circumstance greatly enhances the value of the translation of Lucretius by Dr. Good, published in 2 vols. 4to. in 1805; for in this edition the translator printed the Latin text of his author from Wakefield's edition, on corresponding pages to his version. Dr. Good farther enriched his work with an interesting preface, and many valuable notes.

LUCRINUS LACUS, a lake of Campania, be-

tween Baiæ and Puteoli, famous for oysters.—Horace, Martial, Juvenal. 'A long neck of land,' says Dr. Clarke, 'prevents the waves from washing into a sedgy pool the poor remnant of the Lucrine Lake, once so renowned for the abundance and flavor of its shell fish, of which large beds lined the shallows, while a deep channel in the middle afforded riding and anchorage for vessels, and a passage into the inner basin of Avernus; a small canal now serves to discharge the superabundant waters. I suppose that originally the Lucrine was only a marsh overflowed by the sea, till Hercules gave it extent and depth, by rising a mound across, and damming cut the salt water; that afterwards Augustus formed the Julian port, by raising this wear to a sufficient level, and thereby procuring depth of water for a navy to float in.'

LUCUBRATE, *v. a.* } Lat. *lucubror, lucu-*
LUCUBRA'TION, *n. s.* } *bratio*. To watch or
LUCUBRATORY, *adj.* } study by night: lucu-
 bration is nocturnal study; any thing composed
 by night: lucubratory, composed by candle-
 light.

Thy *lucubrations* have been perused by several of our friends. *Tutler.*

You must have a dish of coffee, and a solitary candle at your side, to write an epistle *lucubratory* to your friend. *Pope.*

LUCULENT, *adj.* *luculentus*. Clear; transparent; lucid: hence certain; evident.

They are against the obstinate incredulity of the Jews, the most *luculent* testimonies that Christian religion hath. *Hooker.*

And *luculent* along
 The purer rivers flow.

Thomson's Winter.

LUCULLUS (Lucius Licinius), a Roman general, celebrated for his eloquence, his victories, and his riches. In his youth he pleaded at the bar; and being afterwards made quæstor in Asia, and prætor in Africa, governed those provinces with great moderation and justice. Scarcely was he known as a military man, when he twice conquered the fleet of Hamilcar, and gained two great victories over him. Being made consul with Aurelius Cotta, during the third war with Mithridates, king of Pontus, he was sent against this prince; and this expedition was attended with a series of victories, which did him less honor than an act of generosity towards his colleague; who, willing to take advantage of his absence to signalise himself by some great exploit, hastened to fight Mithridates; but was defeated and shut up in Calcedonia; where he must have perished, if Lucullus, sacrificing his resentment to his patriotism, had not flown to his assistance, and disengaged him. All Pontus then submitted to Lucullus; who, being continued in his government of Asia, entered the territories of Tigranes, the most powerful king in Asia. That prince marched with a formidable army against Lucullus: who defeated him with a handful of men, and killed great numbers of his forces; took Tigranocertes, the capital of his kingdom; and was ready to put an end to the war, when the intrigues of a tribune got him deposed, and Pompey nominated in his room. Lucullus, having brought home prodigious riches, now

gave himself up to excessive luxury; and his table was served with a profusion till that time unknown. He brought from the east a great number of books, which he formed into a library, and gave admittance to all men of learning, who frequented it in great numbers. Toward the end of his life he fell into a kind of madness; and Lucullus his brother was appointed his guardian. He is said to have been the first who introduced cherries into Europe, having brought the grafts from Pontus.

LUCUS, a wood, or grove, sacred to a deity, so called à lucendo, because a great number of lights were usually burning in honor to the god; a practise common with idolaters, as we learn from Scripture: hence Homer's *αγλαον αλσος*.

LUD, a British king mentioned in old chronicles, and said to have reigned about A. M. 3878. He is reported to have enlarged and built walls about Troynovant, or New Troy, where he kept his court, and made it his capital. The name of London is hence derived from Lud's town; and Ludgate, from his being buried near it: but other derivations are at least as probable. See LONDON.

LUDAMAR, a country of Central Africa, bounded by Kaarta and Bambarra on the south, and by the Sahara or Great Desert on the north. The inhabitants are Moors of the most bigoted character, who murdered major Houghton, and kept Mr. Park in long captivity. They are almost entirely strangers to agriculture, and depend for subsistence on their cattle, and the women weave cloth from goat's hair, and transform the skins of the cattle into saddles, bridles, pouches, &c. They likewise make up the native iron into spears and knives: but import their muskets and ammunition from Europe. Each soldier furnishes his own horse and equipments, which consist in a large sabre, a double barrelled gun, a small red leather bag for balls, and a powder-horn. He supports himself entirely by plunder. Though rigid Musselmans they have no mosques, but perform their devotions in an enclosure of mats. The priests officiate as school-masters, so far as to teach the males reading and writing, but the education of the women is entirely neglected. Their idea of a fine form is, like the Hottentots, that of extreme corpulence. The king, who personally administers justice, is only distinguished by a finer cloth and larger tent: but he will be seen eating out of the same bowl, and sleeping in the same bed with his camel driver. He defrays his expenses by a tax on his subjects, and duties upon the merchandise passing through the kingdom.

LUDEHAUNAT, a town and fortress of Hindostan, situated in the Seik country, on the north-west boundary of the province of Delhi, and on the south bank of the Suttelege. It is the most remote British military station in Hindostan. It is a post of defence against the Afghans, and has a cold climate for four months; but, during the summer, the winds are hot. It is 180 miles N.N.W. of Delhi.

LUDICROUS, *adj.* } Lat. *ludicr.* Laugh-
LUDICROUSLY, *adv.* } able; or exciting
LUDICROUSNESS, *n.* } laughter; burlesque;
portive.
Buttarch quotes this instance of Homer's judg-

ment, in closing a *ludicrous* scene with decency and instruction.

A gentleman solicited Pope to endeavour a reconciliation by a *ludicrous* poem.

I have been at a loss, in all the pictures I have seen of hell, whether the painter did not intend something *ludicrous*.

Me oft has fancy *ludicrous* and wild

Soothed with a waking dream of houses, tower
Trees, churches, and strange visages expressed
In the red cinders, while with poring eye
I gazed, myself creating what I saw.

LUDIUS, a celebrated painter, who lived in the reign of Augustus, and excelled in large compositions. He was the first who painted the fronts of houses in the streets of Rome; which he beautified with great variety of landscapes, and other subjects.

LUDLOW (Edmund), son of Sir Henry Ludlow, was born at Maidenhead, and educated in Trinity College, Oxford. His father opposing king Charles I.'s interests, he joined the same party, and was present at the battle of Edgehill, as a volunteer under the earl of Essex. Upon the death of his father he was chosen M. P. for Wilts, and obtained the command of a regiment of horse for the defence of that county. He was one of the king's judges; after whose death he was sent by parliament into Ireland, in quality of lieutenant-general of the horse; which employment he discharged with diligence and success till the death of the lord deputy Ireton, when he acted for some time as general, though without that title: Cromwell, who knew him to be sincerely in the interest of the commonwealth, contriving to prevent the parliament from conferring on him that title. The last stroke had been given by Ludlow to the Irish rebellion, if the usurpation of Cromwell had not prevented it. Under him he never acted; and, though Cromwell used his utmost efforts, he remained inflexible. After Cromwell's death he endeavoured to restore the commonwealth; but Charles II. being recalled, he concealed himself, and escaped into Switzerland, where he settled at Vevay. After the revolution he came over into England, to be employed in Ireland against king James; but, appearing publicly in London, an address was presented by Sir Edward Seymour to king William III. for a proclamation in order to apprehend colonel Ludlow, attainted for the murder of king Charles I. Upon this he returned to Vevay, where he died in 1693. During his retirement in Switzerland he wrote his Memoirs, which were published in 3 vols. 8vo., and 1 vol. folio.

LUDLOW, a market and borough town of Shropshire, at the conflux of the Tamé and the Corve, twenty-nine miles from Shrewsbury, and 142 from London. The president of the council of the marshes, established by Henry VIII., generally kept his courts in it, by which the town was much benefited. But these courts were abolished in 1688. Its neighbourhood to Wales makes it a great thoroughfare. It was incorporated by Edward IV. and has the privilege of trying and executing criminals. It is one of the neatest towns in England; and has walls and seven gates. It is divided into four wards, and is governed by two bailiffs, twelve aldermen,

twenty-five common council-men, a recorder, town-clerk, steward, chamberlain, coroner, &c. From the castle, on the top of the hill on which the town stands, is a most delightful prospect. In an apartment of the outer gatehouse Butler is said to have written the first part of his *Hudibras*. This castle was besieged and taken by king Stephen. Some of the offices are fallen down, and great part of it turned into a bowling-green; but part of the royal apartments and the sword of state are still left. The battlements are very high and thick, and adorned with towers. It has a neat chapel, where are the coats of arms of many Welsh gentry, and over the stable doors are the arms of queen Elizabeth, the earls of Pembroke, &c. This castle was a palace of the prince of Wales. The Tame has a good bridge, several weirs, and turns many mills. The town-house is an elegant building of hewn stone. The church is an ancient and venerable structure, built of stone, standing in the upper part of the town. It is in the Gothic style, with large and lofty windows of painted glass, and has a high tower and spire, with eight bells. In the choir is an inscription relating to prince Arthur, elder brother to Henry VIII., who died here. In the market place is a conduit, with a long stone cross on it, and a niche wherein is the image of St. Laurence, to whom the church was dedicated. It has an alms-house for thirty poor people, and two charity schools for fifty boys and thirty girls. Its principal market is on Monday. The country round is exceedingly pleasant, fruitful, and populous, especially that part called the Corvesdale, being the vale on the banks of the Corve. Ludlow sends two members to parliament.

LUDOLPH (Job), a very learned writer of the seventeenth century, born at Erfurt in Thuringia, 15th June 1624. His merit raised him to the rank of counsellor of state, and, after eighteen years service, to that of honorary counsellor. He died at Frankfort, in 1704, aged eighty. He published *A History of Ethiopia*, in 1681, folio; an *Ethiopic Grammar*, and many other valuable works.

LUDOLPH (Henry William), nephew of Job, was born at Erfurt in 1655. He came over to England as secretary to M. Lenthe, envoy from the court of Copenhagen to that of London; and, being recommended to prince George of Denmark, was received as his secretary. He enjoyed this office for some years, until he was incapacitated by ill health; when he was discharged with a handsome pension; after he recovered, he travelled into Russia, where he was well received by the czar, and where he was supposed by the Russian priests to be a conjuror. On his return to London, in 1694, he wrote a grammar of the Russian language. He then travelled into the east, to inform himself of the state of the Christian church in the Levant; the deplorable condition of which induced him after his return, with the aid of the bishop of Worcester, to print an edition of the New Testament in the Romain or vulgar Greek, to present to the Greek church. In 1709, when great numbers of Palatines came over to England, Mr. Ludolph was appointed by queen Anne one of the commissioners to manage the charities raised for them; but he died early in

1710. His collected works were published in 1712.

LUDWIGIA, in botany, a genus of the monogynia order, and tetrandria class of plants; natural order seventeenth, calycanthemæ: cor. tetrapetalous: cal. quadripartite, superior: caps. tetragonal, quadrilocular, inferior and polyspermous.

LUDWIGSBURG, a well-built town of Württemberg, on the left bank of the Neckar, the chief place of the department of the Enz. It is situated mostly on a rising ground, with gardens below; and has a charitable institution for the education of young children, with which the workhouse and a woollen manufactory have been connected. It was founded in 1715; the court removed to it in 1727, and it rapidly increased; but in 1733, on the death of the reigning duke, the public offices were brought back to Stuttgart, and Ludwigsburg has since been only an occasional residence of the court. Its population is little more than 5000. The palace and opera-house are both fine buildings. Seven miles north of Stuttgart.

LUES, in medicine, is in general used for a disease of any kind; but in a more particular sense is restrained to contagious and pestilential diseases: thus the lues Gallica, or venerea, signifies the venereal disease. See **MEDICINE**.

LUFF, or **LOOF**, *v. n.* Sax. *lufft*; Dan. *luft*; the wind. To keep close to the wind. A sea term.

Contract your swelling sails, and *luff* to wind.

Dryden.

To **LUFF** signifies to put the helm towards the lee side of the ship, in order to make the ship sail nearer the direction of the wind. Hence the pilot's orders to the steersman, *luff round*, or *luff a-lee*, is the excess of this movement, by which it is intended to throw the ship's head up in the wind, in order to tack her, &c. A ship is accordingly said to spring her luff when she yields to the effort of the helm, by sailing nearer to the line of the wind than she had done before.

LUFF TACKLE, a name given by sailors to any large tackle that is not destined for a particular place, but may be variously employed as occasion requires. It is generally somewhat larger than the jigger tackle, although smaller than those which serve to hoist the heavier materials into and out of the vessel, which latter are the main and fore tackles, the stay and quarter tackles, &c.

LUG, *v. a. & v. n.* Sax. *alucean*, *luggian*, to pull; Swed. *lugga*; Dan. *luge*. To hale or drag; to pull with violence; to come along heavily.

You gods! why this

Will *lug* your priests and servants from your side.

Shakspeare.

Thy bear is safe, and out of peril,
Though *lugged* indeed, and wounded very ill.

Hudibras.

When savage bears agree with bears,
Shall secret ones *lug* saints by the ears? *Id.*
My flagging soul flies under her own pitch,
Like fowl in air, too damp, and *lugs* along,
As if she were a body in a body. *Dryden.*
Either every single animal spirit must convey a whole representation, or else they must divide the image amongst them, and so *lug* off every one his share.

Collier.

LUG, *n. s.* Belg. *log*; Scot. *lug*. A small kind of fish; a small worm; also a land measure of about a pole or perch in length.

That ample pit, yet far renowned
For the large leap which Debon did compel
Ceaulin to make, being eight *lugs* of ground.

Spenser.
They feed on salt unmerchtable pilchards, tag
worms, *lugs*, and little crabs.
Carew.

LUG, *n. s.* Scot. *lug*. The ear.
An anxious ee I never throws
Behint my *lug*, or by my nose;
I jouk beneath misfortune's blows
As weel's I may;
Sworn foe to sorrow, care, and prose,
I rhyme away. Burns.

LUGANO, or LAUIS, a trading town of Switzerland, the capital of the canton of the Ticino, stands on the north side of the lake of Lugano, and has an extensive traffic in silk, and some much-frequented fairs. Population 4350. Sixteen miles north-west of Como.

LUGANO, a lake in the canton of Ticino, south of Switzerland, is twenty-five miles in length, from three to six in breadth, and of great depth. The elevation of its surface above the Mediterranean is computed at 930 feet. It communicates with the lake Maggiore by the Tresa, and the lake Piano by the Canale Nuovo. The banks, at the base of two mountain ranges, are steep and craggy, displaying a scene of uncommon magnificence. In the bay near Lugano they slope down to the edge of the water, and discover the town surrounded by meadows, corn-fields, and vineyards, while the Alps form a grand semicircular boundary to the landscape.

LUGDUNUM, in ancient geography, the capital of the Segusiani, in Gallia Celtica, situated at the conflux of the Arar and Rhodanus, on an eminence, as the Celtic term dune signifies; built by Manucius Plancus, while commanding under Augustus in that part of Gaul; and whither he led a colony. It is now called Lyons.

LUGDUNUM BATAVORUM, in ancient geography, a town of the Batavi in Gallia Belgica; now called Leyden.

LUGDUNUM CONVENARUM, in ancient geography, a town of Gallia Narbonensis, in Aquitania, at the foot of the Pyrenees. Now called St. Bertrand.

LUGEUS LACUS, in ancient geography, a lake of Japydia, in Illyricum, south of the Save, near the head of the Arsia.

LUGGAGE, *n. s.* Either from *lug*, to pull; or a corruption of loadage. Any thing cumbersome or heavy; any thing of more weight than value.

Come, bring your *luggage* nobly on your back.
Shakspeare.

What do you mean
To doat thus on such *luggage*?
Id. Tempest.

Think not thou to find me slack, or need
Thy politic maxims, or that cumbersome
Luggage of war there shewn me.

Milton's Paradise Regained.

How durst thou with that sullen *luggage*
O' th' self, old ir'n, and other baggage,
T' oppose thy lumber against us? Hudibras.
The mind of man is too light to bear much certainty among the ruffling winds of passion and opi-

nion; and, if the *luggage* be prized equally with the jewels, none will be cast out till all be shipwrecked.
Glanville.

A lively faith will bear aloft the mind,
And leave the *luggage* of good works behind.

Dryden.
I am gathering up my *luggage*, and preparing for
my journey.
Swift to Pope.

LUGO, a neat city of Galicia, Spain, near the Minho. It stands on an eminence, and is more than three miles in circuit. It is of great antiquity, having been the capital of a conventus or district, under the Romans, who knew it as Lucus Augusti. It is now a bishop's see, and has a cathedral of Gothic architecture, with several other churches and convents. The walls are in good preservation; and it has some small woollen manufactures. Inhabitants 5000. Fifty-one miles east of Santiago.

LUGO, a town of Italy, in the ecclesiastical state, province of Ferrara, on the river Senio. In 1796 it was pillaged by the French. Inhabitants 5000. Fifteen miles south of Ferrara.

LUGO (John), a learned Jesuit, born in Madrid, and educated at Salamanca. He was professor of divinity at Valladolid, and afterwards in Rome, where Urban VIII. made him a cardinal. He was the first who introduced the Jesuits' bark into France, in 1650. He died in Rome in 1660. His works on theology were printed in Rome in 7 vols. folio.

LUG-SAIL, a square sail hoisted occasionally on the mast of a boat or small vessel, upon a yard which hangs nearly at right angles with the mast. These are more particularly used in the barca longas, navigated by the Spaniards in the Mediterranean.

LUGUBRIOUS, *adj.* Fr. *lugubre*; Lat. *lugubris*. Mournful; sorrowful.

A demure, or rather a *lugubrious* look, and a whining tone, make up the sum of many men's humiliations.
Decay of Piety.

LUITPRAND, a celebrated Lombard historian of the tenth century, born in Pavia. He was secretary to Berengarius, who, in 948, sent him ambassador to Constantine VIII.; but, having afterwards disgraced him, Otho I. drove Berengarius from the throne, and made Luitprand bishop of Cremona. In 968 he was sent ambassador to the emperor Nicephorus Phocas. He died in Italy. His history was printed at Antwerp in 1640, in folio.

LUKE (St.), the evangelist, and the disciple of the apostles, was originally of Antioch in Syria, and by profession a physician. He particularly attached himself to St. Paul, and was his faithful companion in his travels and labors. He went with him to Troas in Macedonia, about A.D. 51. He wrote his Gospel in Achaia about 53; and, in 63, the Acts of the Apostles, which contains a history of thirty years. Of all the inspired writers of the New Testament, his works are written in the most elegant Greek. It is believed that St. Luke died at Rome, or in Achaia.

LUKE (St.) THE GOSPEL OF, a canonical book of the New Testament. Some think that it was properly St. Paul's Gospel; and that, when the apostle speaks of his gospel, he means what is

called St. Luke's. Irenæus says, that St. Luke digested in writing what St. Paul preached to the Gentiles; and Gregory Nazianzen tells us, that St. Luke wrote with the assistance of St. Paul.

LUKEWARM, *adj.* } Sax. *plæc*; Dan. *luk*; Belg. *loau*;
LUKEWARMLY, *adv.* } *lunk*; Belg. *loau*;
LUKEWARMNESS, *n. s.* } Teut. *lew*; Scot. *lew*.
As Mr. Thomson suggests, perhaps breathwarm. Moderately warm; hence indifferent; wanting zeal or decision.

A dreary corse, whose life away did pass,
All wallowed in his own yet lukewarm blood,
That from his wound yet welled fresh alas!

Færie Queene.

May you a better feast never behold,
You knot of mouth friends! smoke and lukewarm water

Is your perfection. *Shakspeare. Timon of Athens.*
Some kind of zeal counts all merciful moderation lukewarmness. *King Charles.*

God loves this heat of zeal, in all the carriages of his servants; and if it transport us too far, he pardoneth the errors of our fervency, rather than the indifference of lukewarmness. *Bp. Hall.*

I consider further, that, without the superinducing a contrary state of good to the former state of evil, we cannot return, or go off from that evil condition that God hates, I mean the middle state, or the state of lukewarmness. *Bp. Taylor.*

If some few continue stedfast, it is an obedience so lukewarm and languishing, that it merits not the name of passion. *Dryden.*

This sober conduct is a mighty virtue
In lukewarm patriots. *Addison's Cato.*

The defect of zeal is lukewarmness, or coldness in religion; the excess is inordinate heat and spiritual fury. *Spratt.*

Whence is it but from this attractive power, that water, which alone distils with a gentle lukewarm heat, will not distil from salt of tartar without a great heat? *Newton's Opticks.*

Bathing the body in lukewarm water is of great advantage to temperate hot and sharp humours.

Wise man's Surgery.

Go dry your chaff and stubble, give fire to the zeal of your faction, and reproach them with lukewarmness. *Swift.*

Shall heaven which gave us ardour, and has shewn Her own for man so strongly, not disdain What smooth emollients in theology, Recumbent Virtue's downy doctors, preach, That prose of piety, a lukewarm praise? Rise odours sweet from incense uninflamed?

Devotion when lukewarm is undevout. *Young.*

Moderation is a great and important Christian virtue, very different from that bad quality of the mind under which it is often misrepresented and disguised, viz. lukewarmness and indifference about the truth. The former is very consistent with a regular and well-corrected zeal; the latter consists in the total want of it. *Mason.*

LULL, *v. a.* } Dan. *lulle*; Swed. *lulla*;
LULLABY, *n. s.* } Ital. *lolla*; Lat. *lullo, lullus*.
To soothe or compose to sleep, by pleasing sounds; compose or beguile in any way: lullaby is a song to still or compose babes.

And in her barme this litil child she leid
With ful sad face, and gan the child to blisse,
And lulled it, and aftir gan it kisse.

Chaucer. Cant. Tales.

There trickled softly down
A gentle stream, whose murmuring wave did play

Amongst the pumy stones, and made a sound
To lull him soft asleep, that by it lay.

Færie Queene.

Philomel with melody,
Sing in your sweet lullaby;
Lulla, lulla, lullaby; lulla, lulla, lullaby.

Shakspeare.

—Marry, Sir, lullaby to your bounty till I come again. *Id.*

Only that noise heaven's rolling circles keet,
Sung lullaby, to bring the world to rest. *Fairfax.*

Such sweet compulsion doth in musick lie,
To lull the daughters of necessity. *Milton.*

To find a foe it shall not be his hap,
And peace shall lull him in her flowery lap. *Id.*

How hard soe'er it be to bridle wit,
Yet memory oft no less requires the bit
How many hurried by its force away,
For ever in the land of gossips stray!
Usurp the province of the nurse to lull,
Without her privilege of being dull!

Stillfleet.

Drinking is the lullaby used by nurses to still crying children. *Locke on Education.*

No more these scenes my meditations aid,
Or lull to rest the visionary maid. *Pope.*

By the vocal woods and waters lulled,
And lost in lonely musing in a dream.

Thomson.

To the silent hours
How often I repeat their rage divine,
To lull my griefs, and steal my heart from woe.

Young.

What neither yields us profit nor delight
Is like a nurse's lullaby at night;
Guy Earl of Warwick and fair Eleanore,
Or giant-killing Jack, would please me more.

Couper.

Deep in the silent vale, unseen,
Beside a lulling stream,

A pensive youth, of placid mien,
Indulged this tender theme. *Beattie.*

Or my guitar, which still thou lovest to hear,
Shall sooth or lull—or, should it vex thine ear,
We'll turn the tale, by Ariosto told,
Of fair Olympia loved and left of old. *Byron.*

LULLI (John Baptist), the most celebrated musician that has appeared in France since the revival of learning, was born at Florence. He was taken to France when very young, and he carried the art of playing on the violin to the highest perfection. Louis XIV. made him superintendant of music. Some time after, Perinna having introduced operas into France, and quarrelling with his company, he resigned his privilege to Lulli. Operas were then carried to the utmost perfection by him, and were attended with continual applause. Lulli gave a piece of his own composition annually till his death, in 1687.

LULLY (Raymond), a celebrated writer, sur-named the Enlightened Doctor, was born in Majorca in 1225. He applied himself with indefatigable labor to the study of the Arabian philosophy, to chemistry, physick, and divinity; and acquired great reputation by his works. He at length went to preach the gospel in Africa; and was stoned to death in Mauritania, at the age of eighty. He is honored as a martyr in Majorca, whither his body was carried. He wrote many treatises on the sciences, in which he shows much study and subtilty, but little

judgment or solidity. A complete edition of his works has been printed at Mentz.

LUMBA'GO, *n. s.* Lat. *lumbi*, the loins. Pain of the loins.

Lumbago are pains very troublesome about the loins, and small of the back, such as precede ague fits and fevers: they are most commonly from fulness and acrimony, in common with a disposition to yawnings, shudderings, and errattick pains in other parts, and go off with evacuation, generally by sweat, and other critical discharges of fevers. *Quincy.*

LUMBAGO. See **MEDICINE**, Index.

LUMBER, *n. s., v. a. & v. n.* Sax. *loma*, ge-loma, household-stuff; Belg. and Teut. *lomp*, *lump*. Any thing useless, cumbersome, or unsorted: any thing of more bulk than value: to heap things irregularly; to move in a heavy, sluggish, or noisy manner.

The very bed was violated
By the coarse hands of filthy dungeon villains,
And thrown amongst the common *lumber*. *Olway.*

One son at home

Concerns thee more than many guests to come.

If to some useful art he be not bred,

He grows mere *lumber*, and is worse than dead. *Dryden.*

First let them run at large,
Nor *lumber* o'er the meads, nor cross the wood. *Id.*
If God intended not the precise use of every single atom, that atom had been no better than a piece of *lumber*. *Grew.*

In Rollo we must have so much stuff *lumbered* together, that not the least beauty of tragedy can appear. *Ryder.*

The poring scholiasts mark;
Wits, who, like owls, see only in the dark;
A *lumber*-house of books in every head. *Pope.*

And gods and goddesses discarded long,
Like useless *lumber* or a stroller's song,
Are bringing into vogue their heathen train,
And Jupiter bids fair to rule again. *Cowper.*

A man that knows himself will have a regard to the furniture of his memory; not to load it with trash and *lumber*, a set of useless notions or low conceits, which he will be ashamed to produce before persons of taste and judgment. *Mason.*

LUMBRICUS, the worm, in zoology, a genus of insects belonging to the order of vermes in-testina. The body is cylindrical, annulated, with an elevated belt near the middle, and a vent-hole on its side. There are sixteen species of this animal.

L. marinus, the marine worm, or lug, is of a pale red color, and the body is composed of a number of annular joints; the skin is scabrous, and all the rings or joints are covered with little prominences, which render it extremely rough to the touch. It is an inhabitant of the mud about the sea shores, and serves for food to many kinds of fish: very large ones are to be met with about the Bognor rocks in Sussex. The fishermen bait their hooks and nets with them.

L. terrestris, the earth or dew worm, Mr. Bar-but observes, differs extremely in color and external appearance in the different periods of its growth, which has occasioned people little acquainted with the variations of this kind of animals to make four or five different species of them: The general color is a dusky red. They live under ground, never quitting the earth but after heavy rains or at the approach of storms, and in the season of their amours. The method

to force them out is, either to water the ground with infusions of bitter plants, or to trample on it. The bare motion on the surface of the soil drives them up, in fear of being surprised by their formidable enemy the mole. The winding progression of the worm is facilitated by the inequalities of its body, armed with small, stiff, sharp-pointed bristles; when it means to insinuate itself into the earth, there oozes from its body a clammy liquor, by means of which it slides down. It never damages the roots of vegetables. Its food is a small portion of earth, which it has the faculty of digesting. The superfluity is ejected by way of excrement. Earth worms are hermaphrodites, and have the parts of generation placed near the neck; their copulation is performed on the ground; nothing being more usual than to see it full of holes, which holes are thought to be made by those kind of worms coming to the surface in quest of females.

LUMINARY, *n. s.* Fr. *luminaire*; Lat. *luminatio*, *n. s.* } *minare*, *lumen*. A body
LUMINOUS, *adj.* } emitting light; any thing or person that affords mental light, intelligence, or instruction: lumination is emission of light: luminous, shining; bright with light; enlightened.

Fire burneth wood, making it first *luminous*, then black and brittle; and, lastly, broken and incinerate. *Bacon.*

Sir John Graham, I know not upon what *lumi-naries* he espied in his face, dissuaded him from marriage. *Wotton.*

The great *luminary*
Dispenses light from far. *Milton.*

Earth may, industrious of herself, fetch day,
Travelling east; and, with her part averse,
From the sun's beam, meet night; her other part
Still *luminous* by his ray. *Id. Paradise Lost.*

The most *luminous* of the prismatick colours are the yellow and orange; these affect the sense more strongly than all the rest together. *Newton.*

The circulation of the blood, and the weight and spring of the air, had been reserved for a late happy discovery by two great *luminaries* of this island. *Bentley.*

How came the sun to be *luminous*? Not from the necessity of natural causes. *Id.*

Not all these *luminaries* quenched at once,
Were half so sad as one mighted mind,
Which gropes for happiness, and meets despair. *Young.*

The state of the possessor of humble virtues, to the affecter of great excellencies, is that of a small cottage of stone, to the palace raised with ice by the empress of Russia; it was for a time splendid and *luminous*, but the first sunshine melted it to nothing. *Johnson.*

O! what a fund of genius, pent
In narrow space, is here!
This volume's method and intent
How *luminous* and clear! *Cowper.*

LUMISDEN (Andrew), esq., a late eminent antiquarian and man of letters, born in Aberdeen in 1720. He was of the family of Cushnie, in Aberdeenshire, and, in the early period of his life, travelled into Italy, and resided a considerable time at Rome; during which he wrote a work, entitled *Remarks on the Antiquities of Rome and its environs*; wherein he describes the venerable antiquities of that ci-devant metropolis of the world with equal fidelity and elegance

He afterwards spent many year in Paris, but died in his native town in 1801

LUMP, *n. s. & v. a.* } Belg. *lomp, klomp*. A mass; an unformed or undistinguished body }
LUMP'ING, *adj.* }
LUMP'ISH, *adj.* } or collection of things;
LUMP'ISHLY, *adv.* }
LUMP'ISHNESS, *n. s.* } the whole system: to lump is to take in the gross or wholesale: lumping and lumpish, gross; massy; heavy; inactive; inert: lumpy, abounding in lumps or excrescencies.

And Isaiah said, Take a *lump* of figs.

2 Kings xx. 7.

Hence, heap of wrath, foul indigested lump;
 As crooked in thy manners as thy shape.

Shakspeare.

All men's honours

Lie like one *lump* before him to be fashioned
 Into what pinch he please. * *Id.* Henry VIII.
 Sylvia is *lumpish*, heavy, melancholy.

Shakspeare.

Out of the earth was formed the flesh of man, and therefore heavy and *lumpish*.

Raleigh.

The weed *kai* is by the Egyptians used first for fuel, and then they crush the ashes into *lumps* like a stone, and so sell them to the Venetians. Bacon.

Love is all spirit: fairies sooner may
 e taken tardy, when they night-tricks play,
 Than we; we are too dull and *lumpish*.

Suckling.

Without this various agitation of the water, how could *lumps* of sugar or salt cast into it be so perfectly dissolved in it, that the *lumps* themselves totally disappear?

Boyle.

Every fragrant flower, and odorous green,
 Were sorted well, with *lumps* of amber laid between.

Dryden.

How dull and how insensible a beast

Is man, who yet would lord it o'er the rest!

Philosophers and poets vainly strove

In every age the *lumpish* mass to move.

Id.

To conceive thus of the soul's intimate union with an infinite being, and by that union receiving of ideas, leads one into as gross thoughts, as a country-maid would have of an infinite butter-print, the several parts whereof being applied to her *lump* of butter, left on it the figure or idea there was present need of.

Locke.

One of the best spades to dig hard *lumpy* clays, but too small for light garden mould.

Mortimer.

Little terrestrial particles swimming in it after the grossest were sunk down, which, by their heaviness and *lumpish* figure, made their way more speedily.

Burnet.

Why might there not have been, in this great mass, huge *lumps* of solid matter, which, without any form or order, might be jumbled together?

Keil against Burnet.

A wretch is prisoner made

Whose flesh torn off by *lumps*, the ravenous foe
 In morsels cut.

Tate.

If my readers will not go to the price of buying
 my papers by retail, they may buy them in the *lump*.

Addison.

The expences ought to be *lumped* together.

Ayliffe's Parergon.

It is rare to find any of these metals pure: but copper, iron, gold, silver, lead, and the small promiscuously in one *lump*. Woodward's Natural History.

Nick; thou shalt have a *lumping* pennyworth.

Arbutnot.

Other epidemical vices are rife and predominant only for a season, and must not be ascribed to human nature in the *lump*.

Bentley.

In malice to proud wits, some proudly lull
 Their peevish reason, vain of being dull;
 When some home joke has stung their solemn souls,
 In vengeance they determine—to be fools;
 Thro' spleen, that little nature gave, make less,
 Quite zealous in the ways of heaviness;
 To *lumps* inanimate a fondness take,
 And disinherit sons that are awake. Young.

LUMPFISH. See CYCLOPTERUS.

LUNA, in astronomy, the moon. See ASTRONOMY.

LUNA, in alchemy, signifies silver; from the supposed influence of the moon upon that metal.

LUNA, in ancient geography, a forest of Germany, near the Hercynia; below which were the Boemi: it was therefore in Moravia near the springs of the Marus, now March, which runs into the Danube over against Carnutum.

LUNA, a town and port of Liguria, at the mouth of the Macra. The town was but small, but the port large and beautiful, according to Strabo. Its ruins are called Luna distrutta. It was famous for its quarries of white marble, thence called Lunense; and for its large cheeses, each weighing 1000lbs. It lies two miles south of Sarzana.

LUNA (Alvaro, or Alvares de), the favorite of John II. king of Castile, was natural son of Don Alvaro de Luna, lord of Canete, in Arragon, by a woman infamous for unbounded lust. He was born in 1388, was introduced into court in 1408, and made a gentleman of the bed-chamber to king John, with whom he grew into high favor. In 1427 he was obliged to retire; the courtiers complaining that a man of no military skill or virtue should be advanced to the highest authority. Accordingly Alvaro was banished from court eighteen months; but this was the greatest affliction imaginable to the king; who showed every mark of distress upon his removal, and spoke of nothing but Alvaro. He was therefore recalled; and, being invested with his usual authority, revenged himself upon his enemies, by persuading the king to banish them. Of the forty-five years he spent at court, he enjoyed for thirty of them so entire an ascendancy over the king, that nothing could be done without his orders. In short, he wanted nothing but the name of king; he had all the places in the kingdom at his disposal; he was master of the treasury, and by bounties had so gained the hearts of the subjects, that the king, though his eyes were now opened, and his affections sufficiently turned against him, durst not complain. At last, however, he was seized and imprisoned. During his confinement he made several attempts to speak to the king in person; but, not being able to effect this, he sent a letter to the king, which however produced no effect in his favor, for he was tried and condemned to lose his head.

LUNA CORNEA. See CHEMISTRY and SILVER.

LUNACY, *n. s.*

LUNAR, *adj.*

LUNARY, *adj. & n. s.*

LUNATED,

LUNATIC, *adj. & n. s.*

LUNATION, *n. s.*

LUNE, *n. s.*

LUNETTE.

From *luna* the moon. A kind of madness influenced by the moon; madness in general. Lunar and lunary, as adjectives, signify relating to, or under the influence of the moon:

as a substantive lunary is moon-wort, a plant. Lunated, horned, as the moon. Lunatic, mad; a madman. Lunation is the revolution of the moon. Lune, any thing of the shape of a half-moon. Lunette, a small half-moon.

Herbes coude I tell eke many on,
As egremoine, valerian, and lunarie

And other swiche. *Chaucer. Cant. Tales.*

Then sprinkles she the juice of rue

With nine drops of the midnight dew,

From lunary distilling. *Drayton's Nymphid.*

Love is merely madness, and deserves as well a dark house and a whip as madmen do; and the reason why they are not so punished and cured is, that the lunacy is so ordinary, that the whippers are in love too. *Shakspeare. As You Like It.*

Bedlam beggars, from low farms,
Sometimes with lunatick bans, sometimes with prayers,

Enforce their charity. *Shakspeare.*

The lunatick, the lover, and the poet,

Are of imagination all compact:

One sees more devils than vast hell can hold:

The madman. *Id. Midsummer Night's Dream.*

These dangerous unsafe lunes o' the king! be-shrew them!

He must be told on't, and he shall: the office
Becomes a woman best. *Id. Winter's Tale.*

They that have resolved that these years were but lunary years, viz. of a month, or Egyptian years, are easily confuted. *Ruleigh.*

They have denominated some herbs solar and some lunar, and such like toys put into great words. *Bacon's Natural History.*

There is a difference of lunacy: I had rather be mad with him, that, when he had nothing, thought all the ships that came into the haven his, than with you, who, when you have so much coming in, think you have nothing. *Suckling.*

I dare ensure any man well in his wits, for one in the thousand, that he shall not die a lunatick in bedlam within these seven years; because not above one in about one thousand five hundred have done so. *Graunt's Bills.*

He restored lunatic persons to their right wits, and dispossessed evil spirits. *Barrow.*

The figure of its seed much resembles a horse-shoe, which Baptista Porta hath thought too low a signification, and raised the same into a lunary representation. *Browne's Vulgar Errors.*

If the lunations be observed for a cycle of nineteen years, which is the cycle of the moon, the same observations will be verified for succeeding cycles for years. *Holder on Time.*

Then we upon our globe's last verge shall go,
And view the ocean leaning on the sky;

From hence our rolling neighbours we shall know,
And on the lunar world securely pry. *Dryden.*

Lunette is a covered place made before the courtine, which consists of two faces that form an angle inwards, and is commonly raised in fosses full of water, to serve instead of a fausse braye, and to dispute the enemy's passage: it is six toises in extent, of which the parapet is four. *Trevour.*

The ordinary method of making a tragic hero is to clap a huge plume of feathers upon his head, which rises so very high, that there is often a greater length from his chin to the top of his head, than to the sole of his foot. For my part, when I see a man uttering his complaints under such a mountain of feathers, I am apt to look upon him rather as an unfortunate lunatic than a distressed hero. *Addison.*

See the blind beggar dance, the cripple sing,
The sot a hero, lunatic a king. *Pope.*

The residue of the yearly profits shall be laid out in purchasing a piece of land, and in building thereon an hospital for the reception of idiots and lunatics. *Swift.*

A troop of Janizaries strewed the field,
Fallen in just ranks or wedges, lunes, or squares,
Firm as they stood. *Watts.*

Ye train Pierian! to the lunar sphere,
In silent hour, address your ardent call
For aid immortal, less her brother's right. *Young.*

LUNACY, in law. If a man in his sound memory commits a capital offence, and before arraignment for it he becomes mad, he ought not to be arraigned for it: because he is not able to plead it with that advice and caution that he ought. And if, after he has pleaded, the prisoner becomes mad, he shall not be tried; for how can he make his defence? If, after he be tried and found guilty, he loses his senses before judgment, judgment shall not be pronounced; and if, after judgment, he becomes of nonsane memory, execution shall be stayed: for, peradventure, says the humanity of the English law had the prisoner been of sound memory, he might have alleged something in stay of judgment or execution. Indeed, in the bloody reign of Henry VIII., a statute was made, which enacted, that if a person, being compos mentis should commit high treason, and after full into madness, he might be tried in his absence, and should suffer death, as if he were of perfect memory. But this savage and inhuman law was repealed by the statute 1 & 2 Philip & Mary c. 10. For, as is observed by Sir Edward Coke, 'the execution of an offender is, for example, ut pœna ad paucos metus ad omnes perueniat; but so it is not when a madman is executed but would be a miserable spectacle, both against law, and of extreme inhumanity and cruelty, and can be no example to others.' But if there be any doubt whether the party be compos or not, this shall be tried by a jury. And if he be so found a total idiotcy, or absolute insanity, excuses from the guilt, and of course from the punishment, of any criminal action committed under such deprivation of the senses; but, if a lunatic has lucid intervals of understanding, he shall answer for what he does in those intervals as if he had no deficiency. Yet, in the case of absolute madmen, as they are not answerable for their actions, they should not be permitted the liberty of acting unless under proper control and, in particular, they ought not to be suffered to go loose, to the terror of the king's subjects. It was the doctrine of our ancient law, that persons deprived of their reason might be confined till they recovered their senses, without waiting for the forms of a commission or other special authority from the crown; and now, by the vagrant acts, a method is chalked out for imprisoning, chaining, and sending them to their proper homes. The matrimonial contract likewise cannot take place in a state of idiotcy. It was formerly adjudged, that the issue of an idiot was legitimate, and his marriage valid. A strange determination! since consent is absolutely requisite to matrimony, and neither idiots nor lunatics are capable of consenting to any thing.

And therefore the civil law judged much more sensibly, when it made such deprivations of reason a previous impediment, though not a cause of divorce if they happened after marriage. And modern resolutions have adhered to the sense of the civil law, by determining that the marriage of a lunatic, not being in a lucid interval, was absolutely void. But as it might be difficult to prove the exact state of the party's mind at the actual celebration of the nuptials, upon this account (concurring with some private family reasons), the statute 15 Geo. II. c. 30, has provided, that the marriage of lunatics and persons under phrenzies (if found lunatics under a commission or committed to the care of trustees under any act of parliament) before they are declared of sound mind by the lord chancellor, or the majority of such trustees, shall be totally void. Idiots and persons of nonsane memory, as well as infants and persons under duress, are not totally disabled either to convey or purchase, but sub modo only. For their conveyances and purchases are voidable, but not actually void. The king, indeed, on behalf of an idiot, may avoid his grants or other acts. But it has been said that a non compos himself, though he be afterwards brought to a right mind, shall not be permitted to allege his own insanity in order to avoid such grant: for that no man shall be allowed to stupify himself, or plead his own disability. The progress of this notion is somewhat curious. In the time of Edward I. non compos was a sufficient plea to avoid a man's own bond; and there is a writ in the register for the alienor himself to recover lands aliened by him during his insanity; *dum fuit non compos mentis suæ, ut dicit, &c.* But under Edward III. a scruple began to arise, whether a man should be permitted to blemish himself, by pleading his own insanity; and, afterwards, a defendant in assize having pleaded a release by the plaintiff since the last continuance, to which the plaintiff replied (*ore tenus*, as the manner then was) that he was out of his mind when he gave it, the court adjourned the assize; doubting, whether, as the plaintiff was sane both then and at the commencement of the suit, he should be permitted to plead an intermediate deprivation of reason; and the question was asked, how he came to remember to release, if out of his senses when he gave it? Under Henry VI., this way of reasoning (that a man shall not be allowed to disable himself, by pleading his own-incapacity, because he cannot know what he did under such a situation) was seriously adopted by the judges in argument, upon a question, whether the heir was barred of his right of entry by the seoffment of his insane ancestor? And from these loose authorities, which Fitzherbert does not scruple to reject as being contrary to reason, the maxim, that a man shall not stultify himself, has been handed down as settled law: though later opinions, feeling the inconvenience of the rule, have in many points endeavoured to restrain it. And, clearly, the next heir, or other person interested, may, after the death of the idiot or non compos, take advantage of his incapacity, and avoid the grant. And so too, if he purchases under this disability, and does not afterwards, upon reco-

vering his senses, agree to the purchase, his heir may either waive or accept the estate at his option. In like manner, an infant may waive such purchase or conveyance, when he comes to full age; or, if he does not then actually agree to it, his heirs may waive it after him. Persons, also, who purchase or convey under duress, may affirm or avoid such transaction whenever the duress has ceased. For all these are under the protection of the law; which will not suffer them to be imposed upon through the imbecility of their present condition; so that their acts are only binding, in case they be afterwards agreed to when such imbecility ceases. Yet the guards or committees of a lunatic, by the statute 11 Geo. III. c. 20, are empowered to renew in his right, under the directions of the court of chancery, any lease for lives or years, and apply the profits of such renewal for the benefit of such lunatic, his heirs, or executors.

LUNÆ MONS, in ancient geography, a promontory of Lusitania, now called the rock of Lisbon.

LUNÆ MONS, a mountain of Ethiopia, from which the Nile was supposed to take its rise.

LUNÆ PORTUS, a very extensive port, or rather a bay of Liguria, between *Portus Veneris* and *Portus Ericis*, twenty miles in compass; now called the Gulph of Spezia, on the east coast of Liguria.

LUNAR CAUSTIC. See **CHEMISTRY**.

LUNAR IRIS, or **LUNAR RAINBOW**, a rainbow formed by the reflection of the rays of light from the moon. This phenomenon is seldom observed. Aristotle is said to have been the first who observed a lunar iris, and says they are never seen but at full moon. They never appear unless the moon be near the opposition. See **RAINBOW**, and **OPTICS**.

LUNAR MONTH. See **CHRONOLOGY** and **MONTH**.

A **LUNAR YEAR** consists of 354 days, or twelve synodical months. See **YEAR**.

LUNARE OS, in anatomy, the second bone in the first row of the carpus; so named because one of its sides is in form of a crescent.

LUNARIA, satin flower, honesty, or moonwort, in botany, a genus of the *siliculosa* order, and *tetradynamia* class of plants: natural order thirty-ninth, *siliquosæ*: *silicula* entire, elliptical compressed, plane, and pedicellated with the valves equal to the partition, parallel and plane: *cal.* leaves alternately fritted at the base. This plant is famous in many places for its medicinal virtues, though it is not received in the shops. The people in the north of England dry the whole plant in the oven, and give as much as will lie on a shilling for a dose twice a day in hemorrhages of all kinds, particularly in the too abundant flowing of the menses, and with great success. The Welsh, among whom it is common, make an ointment of it, which they use externally, in dysenteries.

LUNARIUM, in ancient geography, a promontory of Hispania Citra, between *Blanda* and *Bætulo*; commonly called the Cape of Palafugel, or of Tosa, in Catalonia, on the Mediterranean.

A **LUNATIC** is properly one that has lucid in-

tervals; sometimes enjoying his senses, and sometimes not; and that supposed to depend on the influence of the moon.

LUNATIC, in law. Under the general term of *non compos mentis* (which Sir Edward Coke says is the most legal name) are comprised not only lunatics, but persons under frenzies, or who lose their intellects by disease; those that grow deaf, dumb, and blind, not being born so; or such, in short, as are judged by the court of chancery incapable of conducting their own affairs. To these also, as well as idiots, the king is guardian, but to a very different purpose. For the law always imagines, that these accidental misfortunes may be removed; and therefore only constitutes the crown a trustee for the unfortunate persons, to protect their property, and to account to them for all profits received, if they recover, or, after their decease, to their representatives. And therefore it is declared by stat. 17 Edw. II. c. 10, that the king shall provide for the custody and sustentation of lunatics, and preserve their lands, and the profits of them for their use when they come to their right mind; and the king shall take nothing to his own use; and, if the parties die in such estate, the residue shall be distributed for their souls by the advice of their ordinary, and of course (by the subsequent amendment of the law of administrations) shall now go to their executors or administrators. On the first attack of lunacy, or other occasional insanity, when there may be hopes of a speedy restitution of reason, it is usual to confine the unhappy objects in private custody, under the direction of their nearest friends and relations: and the legislature, to prevent all abuses incident to such private custody, has interposed its authority, by 14 Geo. III. c. 49, for regulating private mad-houses. But when the disorder is grown permanent, and the circumstances of the party will bear such additional expense, it is thought proper to apply to the royal authority to warrant a lasting confinement. The method of proving a person *non compos* is very similar to that of proving him an idiot. The lord chancellor, to whom, by special authority from the king, the custody of idiots and lunatics is intrusted, upon petition or information, grants a commission in the nature of the writ *de idiota inquirendo*, to enquire into the party's state of mind; and, if he be found *non compos*, he usually commits the care of his person, with a suitable allowance for his maintenance, to some friend, who is then called the committee. However, to prevent sinister practices, the next heir is seldom permitted to be of this committee of the person; because it is his interest that the party should die. But, it has been said, there lies not the same objection against his next of kin, provided he be not his heir; for it is his interest to preserve the lunatic's life, in order to increase the personal estate by savings, which he or his family may hereafter be entitled to enjoy. The heir is generally made the manager or committee of the estate, it being clearly his interest by good management to keep it in condition: accountable, however, to the court of chancery, and to the *non compos* himself, if he recovers; or otherwise to his administrators. See **LUNACY**.

LUNCH, *ut. s.*, or *Span. lonja à longitu.*
LUN'CHEON, *dine.*—*Minsheu.* A hand-
ful; or small quantity of food.

When hungry thou stood'st staring, like an oaf,
I sliced the luncheon from the barley loaf;
With crumbled bread I thickened well the mess.

Gay.

LUND, or **LUNDEN**, a town in the province of Scania, or Schonen, Sweden; five miles from the Baltic. A university was founded here in 1666 by Charles XI., which is still attended by above 300 students, and has fifteen professors. It has a library of above 20,000 volumes. The celebrated Puffendorf was a professor here. Population 3300: twenty-one miles east of Copenhagen, and thirty-eight south-west of Christianstadt.

LUNDY, an island of England, fifty miles off the north-west coast of Devonshire, five miles long and two broad, but so encompassed with inaccessible rocks that it has but one entrance, so narrow that two men can scarcely go abreast. It is reckoned in the hundred of Branton. It had anciently a fort and a chapel. The soil on the south is pretty good, but barren on the north, where it has a high pyramidal rock called the Constable. Horses, kine, hogs, goats, sheep, and rabbits, abound in it; but the chief commodity is fowls, and their eggs are very thick on the ground at the season of breeding. In the reign of Henry VIII. one William Morisco, who had conspired to murder him at Woodstock, fled to this island, which he fortified, turned pirate, and did much damage to this coast, but was at last taken, with sixteen of his gang, and put to death.

LUNEBURG, a north-east province of Hanover, once a separate principality of the empire, lies chiefly along the left bank of the Elbe. A small part on the right bank now belongs to Denmark.

Hanoverian Luneburg has a territorial extent of 4236 square miles, and has several rivers besides the Elbe, viz. the Aller, Ilmenau, Oker, Jeetze, Fuhse, &c. Its shape is rectangular and nearly square: it may be said indeed to form a great plain, sloping insensibly on one side towards the Elbe, on the other towards the Aller. It has no mountains; but in the centre is an elevation forming a large heath, called, from its barrenness, the Arabia of Germany. Here, however, sheep are fed, and bees reared; which are in such numbers as to produce honey and wax for export, to the annual value of £30,000. Here also are produced juniper berries, and even bilberries, both in such quantities as to form articles of export. Wherever the soil has any elevation it is sandy, and apt to run into heath; but on the banks of the rivers there are many fertile districts. These low grounds produce corn, particularly buckwheat, hops, and good pasturage, on which horses of large size are reared. The manufactures are chiefly of woollens, linen, and wax. For these the vicinity of Hamburgh affords a ready demand. Luneburg is governed by its own states and courts of justice. At Zell there is a court of appeal for the whole Hanoverian states. bitants 246,000.

LUNEBURG, a town of Hanover, the capital of the province of this name, stands on the L-

menau, here navigable. The town is not attractive to a stranger, having dark and narrow streets, and old fashioned houses, surrounded by walls of no great strength, and six gates. Here are also four churches, with an equal number of hospitals, an orphan house, gymnasium, a military school, in which young men of family and others receive their education. In the market place is the palace of the prince, a good building; and opposite to it the church of St. Michael, where many of the dukes of Luneburg are buried. Luneburg formerly held a leading rank among the Hanse towns, and is, after Embden, the most busy place at present in the Hanoverian states. It carries on a considerable trade in horses, above 70,000 being brought here annually; and it has also a fine salt spring. On the west side of the town is a hill, called the Kalkberg, from which above 20,000 tons of lime are procured annually. One quarter of the town, called the Sulze, is surrounded by a distinct wall and governed by its own magistracy. Population 10,000.

LUNENBURG, a post town of Worcester county, Massachusetts, twenty-five miles N. N. E. of Worcester, and forty-five north-west of Boston. Population 1371.

LUNENBURG, a county in the south part of Virginia, bounded north by Prince Edward and Nottoway counties, east by Brunswick county, south by Mecklenburg county, and west by Charlotte, and Prince Edward counties. Population 12,265.

LUNENSE MARMOR, in the natural history of the ancients, a species of white marble, now called Carrara marble, and distinguished from the statuary kind by its greater hardness and less splendor. It is, and always was, much esteemed in building and ornamental works. It is of a very close and fine texture, of a very pure white, and much more transparent than any other of the white marbles. It is still found in great quantities in Italy. See **LUNA**.

LUNETTE, in the manege, is a half horse-shoe, or such a shoe as wants the sponge, i. e. that part of the branch which runs towards the quarters of the foot.

LUNETTE is also the name of two small pieces of felt, made round and hollow, to clap upon the eyes of a vicious horse that is apt to bite and strike with his fore feet, or that will not suffer his rider to mount him.

LUNEVILLE, a large and populous town of France, in the department of the Meurthe, and ci-devant duchy of Lorraine, seated in a plain between the Meurthe and Vezoul, which unite below it. It has an ancient castle, converted into barracks, where the dukes of Lorraine kept their court; as did afterwards king Stanislaus, who founded a military academy, an hospital, and a large library in it. In this town the convention was held, and treaty of peace concluded, between the emperor Francis II. and the French republic, in October 1801. In the centre of the town is the large and handsome church of St. James's, ornamented by Stanislaus, and the Hotel de Valor. The town has also flourishing manufactures of lace, muslins, stockings, gloves, and pottery. Population 10,000. Twelve miles E. S. E. of Nantz, and eighty west of Strasburg.

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LUNGS, *n. s.* } Sax. *lungen*; Teut. and
LUNG'ED, *adj.* } Dan. *lung*; Belgic *long*.
LUNG-GROWN, } The organs of breathing.

Lunged, furnished with or having the nature of lungs. Lung-grown is explained in the extract.

More would I, but my *lungs* are wasted so,
 That strength of speech is utterly denied me.

Shakspeare.

The *lungs* sometimes grow fast to the skin that lines the breast within; whence such as are detained with that accident are *lung-grown*.

Harvey.

As a man coming into a pestilential air, does not suck in death at every motion of his *lungs*, but by little and little, the spirits are poisoned, and at last enter into their portion of death; so it is in a vicious custom.

Bp. Taylor.

The bellows of his *lungs* begin to swell,
 Nor can the good receive, nor bad expel.

Dryden

Had I a hundred mouths, a hundred tongues,
 And throats of brass inspired with iron *lungs*;
 I could not half those horrid crimes repeat,
 Nor half the punishments those crimes have met.

Id.

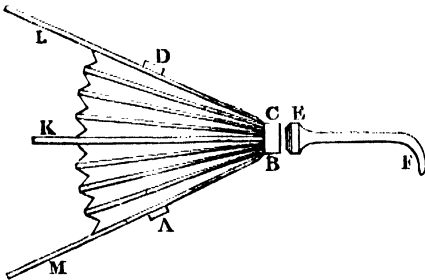
The smith prepares his hammer for the stroke,
 While the *lunged* bellows hissing fire provoke. *Id.*

LUNGS. See **ANATOMY**, AND **RESPIRATION**.

LUNGS, **INFLATIONS OF**. Various have been the instruments contrived with a view to restore the action of the lungs of drowned persons; and in a country like our own, surrounded by the ocean and intersected by rivers and canals, accidents are but too frequently happening which call them into use. A very useful instrument of this sort was invented by M. Goucy, physician to the military hospital, New Busack, which is thus described in the *Journal de Medecine*:— This instrument consists of a double pair of bellows, BCLM, in the diagram, the two different parts of which have no communication with each other. In the lower side, BM, is an aperture, A, for a valve constructed on the principles of those of Nairne's air-pump. It consists of a rim of copper, closed at one end by a plate of the same metal, in which plate are seven small holes placed at equal distances. This plate is covered with a piece of silk coated with elastic gum, in which are six transverse incisions of two or three lines in length. Each incision is so made as to be situated between two of the holes, and at an equal distance from each. The silk must be made very secure, by a thread passing several times round the rim. A stream of air, applied to that side of the plate which is opposite the silk, will pass through the holes, and, lifting up the silk, escape through the incisions. On the contrary, a stream of air applied to the other side will press the silk upon the plate, and thus close the holes, so that it will be impossible for it to pass through them. This valve opens internally, so as to admit the air from without. At B is another valve, on the same construction, but opening in a contrary direction, thus permitting the air to escape out of the lower part into the tube EF, but preventing its entrance. At C is another valve, opening internally to admit the air from the tube EF: and at D there is a fourth opening externally, to discharge the air from the upper part. The flexible tube EF, screwed on at the end CB, being introduced into

Z

one of the nostrils, whilst the mouth and the other nostril are closed by an assistant, if we separate the two handles L, M, which were close together at the introduction of the tube, it is evident that the air in the lungs will rush into the upper part through the valve C, whilst the external air will fill the lower part through the valve A: the two handles being again brought into contact, the atmospheric air will be forced into the lungs through the valve B, and at the same time the air in the upper part will be discharged at the valve D. Thus, by the alternate play of the double bellows, the lungs will be alternately filled and emptied as in respiration. In using the instrument care should be taken not to be too violent; as the more perfectly the natural motion of respiration is imitated the better. There is a handle, K, to the partition in the middle, in order that, if it be at any time necessary to use either of the divisions alone, the other may be confined from acting.

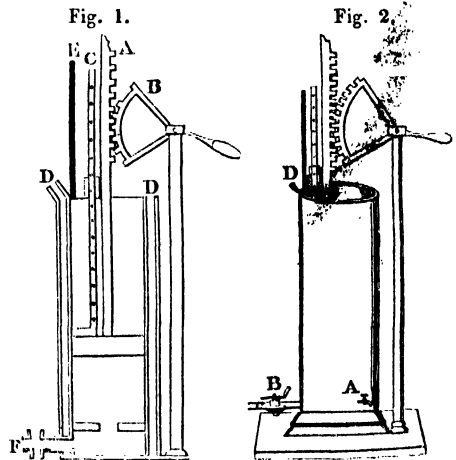


The best instrument of this kind, however, is that of Mr. Murray, of which the following account, communicated by himself to the Edinburgh Philosophical Transactions, may not be unacceptable to our readers.

The diagram, fig. 1, represents the apparatus as it appears externally; in which A is a stop-cock for the efflux of heated water contained between the concentric cylinders, when the operation has closed. B is a stop-cock, with index, attached to the flexible pipe, which extends to the larynx to renew the air when required. When the index points in the direction of the lungs, or parallel with the pipe, the communication between the lungs and cylinder is open; and, when at right angles, that with the lungs is shut, and the cylinder then communicates only with the free atmosphere. Hence, when the piston-rod is raised, and the index points to the lungs, the canal being open, the air reposing on the lungs passes to the cylinder; and when the index is moved the quadrant of a circle, or at right angles with the former position, the aperture which leads to the lungs is closed, and that which conducts into the free atmosphere uncovered; consequently, on the descent of the piston-rod, the air drawn from the lungs is expelled into the atmosphere, while a fresh supply is received on elevating the piston; and, the index being turned into its former position, the descending piston propels it into the lungs, and the alternations of its movements assimilate to the beautiful isochronism of natural respiration. To the lateral aperture is attached a concave

pan, C, somewhat resembling that of a musket, to receive a drop of ether, which, entering into the cylinder along with the ingress of atmospheric air, expands and diffuses itself therein on the elevation of the piston, and thus operates on the lungs with all the stimulus of nitrous oxide. In cases of asphyxia, by carbonic acid gas, a drop of ammonia may be serviceable; while, in that of the septic poison, sulphureted hydrogen, a solution of chlorine might prove of benefit. D is the orifice by which the partition is supplied with heated water.

Fig. 2 exhibits a section of the apparatus, where A is the piston-rod, accurately adapted to the cylinder in which it moves. This inner cylinder has one concentric with it which forms a partition, the recipient of the heated water; and the base, which limits the descent of the solid plunger, has a simple aperture without any valve. B is a toothed quadrant attached to a lever, and moving on a fulcrum, for the purpose of elevating and depressing the piston. C is a check which regulates the altitude of the piston; and thus apportions its elevation to the capacity of the lungs, whether the subject be an adult or of tender age. D is a partition surrounding the inner cylinder, and supplied with water at a temperature sufficient to maintain the air propelled into the lungs at the usual animal temperature, of 98° Fahrenheit. E represents a thermometer for more accurate adjustment, and F a pipe communicating with the interior cylinder, and to which the flexible tube is attached.



LUNG-WORT, in botany. See PULMONARIA.
LUNG-WORT, Cow's. See VERBASCUM.
LUNG-WORT, GOLDEN. See HIERACIUM.
LUNISOLAR YEAR, in chronology, is the space of 532 common years; found by multiplying the cycle of the sun by that of the moon. See CHRONOLOGY.

LUPERCALIA, feasts instituted in ancient Rome, in honor of Pan. They were celebrated on the fifteenth of the kalends of March. They are supposed to have been established by Evander. On the morning of this festival the luperci, or priests of Pan, ran naked through the streets of Rome, striking the married women they met on the hands and stomach with a strap of goat's

leather, which was held an omen promising them fecundity and happy deliveries. See LUPERCI. This feast was abolished in the time of Augustus, but afterwards restored, and continued in the time of the emperor Anastasius. Baronius says it was abolished by pope Anastasius in 496.

LUPERCI, the priests of the god Pan. See LUPERCALIA. They were the most ancient order of priests in Rome; they were divided into two colleges, called Fabii and Quintilii. To these Cæsar added a third, called Julii.

LUPINE, *n. s.* Fr. *lupin*; Lat. *lupinus*. A kind of pulse.

When Protegenes would have undertaken any excellent piece, he used to diet himself with peas and lupines, that his invention might be quick and refined.

Peachum on Drawing.

Some antiquity of traditions hath dieted St. Peter with lupines.

Bp. Hall.

Where stalks of lupines grew,

The' ensuing season in return, may hear

The bearded product of the golden year. *Dryden.*

It has a papilionaceous flower, out of whose em-palement rises the pale, which afterwards turns into a pod filled with either plain or spherical seeds: the leaves grow like fingers upon the foot stalks.

Miller.

LUPINE, or LUPINUS, in botany, a genus of the decandria order, and diadelphia class of plants: natural order thirty-second, papilionaceæ: CAL. bilabiated: there are five oblong and five roundish antheræ: the legumen is coriaceous. There are several species; all easily raised from seed; and succeeding in any open borders, where they make a fine variety. The seeds of the white lupine have a leguminous taste accompanied with a disagreeable bitter, and are said to be anthelmintic, both internally taken, and applied externally. Caspar Hoffman cautions against their external use, and tells us that they have sometimes occasioned death: and Simon Pauli says, that he saw a boy of eight or ten years of age, after taking a dram of them in powder, seized with exquisite pains in the abdomen, a difficulty of respiration, and almost total loss of voice; and that he was relieved by a glyster of milk and sugar, which brought away a vast quantity of worms. But M. Geoffroy justly observes, that either these symptoms were owing to the worms, or that the seeds, if they have any noxious quality, lose it, with their bitterness, in boiling; as they were used among the Greeks as food, and recommended by Galen as very wholesome.

LUPUS, the wolf. See CANIS.

LUPUS, in astronomy. See ASTRONOMY.

LURCH, *n. s.*, *v. n.* & ? Derived by Skin-

LUR'CHER, *n. s.* [*v. a.*] *ner* from *lourche*, a game of draughts, much used, as he says, among the Dutch; but the Belgic language has *loeren*, to shift or play falsely at any game: also *loer*, Teut. *loertsch*, to miss or lose in a game of chance. To leave in the lurch, is to leave a loser; or in a forlorn or deserted condition; to leave without help: to lurch is to shift; play tricks; deceive; disappoint: a lurcher, man or dog that watches for his game or prey.

I myself, sometimes leaving goodness on my left hand, and hiding mine honour in my necessity, am fain to shuffle, to hedge, and to lurch. *Shakspeare.*

He waxed like a sea,
And, in the brunt of seventeen battles since,
He *lurcht* all swords o' th' garland. *Id.*

Will you now to peace incline,

And languish in the main design,

And leave us in the lurch?

Denham.

But though thou'rt of a different church,

I will not leave thee in the lurch.

Hudibras.

It is indeed hard for a man without charity, not to be worse than an innocent beast; not at least to be as a fox, or a wolf; either cunningly lurching or violently ravening for prey.

Barrow.

While the one was upon wing, the other stood lurching upon the ground, and flew away with the fish.

I. Estrange.

Have a care how you keep company with those that, when they find themselves upon a pinch, will leave their friends in the lurch.

Id.

I cannot represent those worthies more naturally than under the shadow of a pack of dogs, made up of finders, lurchers, and setters.

Tatler.

This is a sure rule, that will never deceive or lurch the sincere communicant.

South.

Flirts about town had a design to cast us out of the fashionable world, and leave us in the lurch, by some of their late refinements.

Addison's Guardian.

His thefts some tradesman spies,

Swift from his play the scudding lurcher flies:

Whilst every honest tongue stop thief resounds.

Gay.

Can you break your word with three of the honestest best meaning persons in the world? It is base to take advantage of their simplicity and credulity, and leave them in the lurch at last.

Arbuthnot.

Shaggy, and lean, and shrewd, with pointed ears

And tail cropped short, half lurcher and half cur.

His dog attends him.

Couper.

There was no light in heaven but a few stars,

The boats put off o'er-crowded with their crews;

She gave a heel, and then a lurch to port,

And going down head foremost—sunk, in short.

Byron.

LURCH, *v. a.* Lat. *lurcor*. To devour; to swallow greedily.

Too far off from great cities may hinder business; or too near lurcheth all provisions, and maketh every thing dear.

Bacon.

LURCHER, a kind of hunting dog much like a mongrel greyhound, with pricked ears, a shagged coat, and generally of a yellowish-white color: they are very swift runners, so that if they get between the burrows and the conies they seldom miss; and this is their common practice in hunting: yet they use other subtleties, as the tumbler does, some of them bringing in their game and those are the best. A lurcher will run down a hare at stretch. They are supposed to be mules produced from a cross between the shepherd's dog and the greyhound, which, from breeding in and in with the latter, has so refined upon the original cross, that very little of the shepherd's dog is retained in its stock, its docility and fidelity excepted. They are the favorite dogs of small farmers, since they can both act the part of a sheep dog, and occasionally trip up the heels of a leveret three parts grown. They are also the constant companions of professed and notorious poachers, being admirably adapted to such a kind of service: they equal, if not exceed, any other kind of dog in sagacity; and

are easily taught any thing that an animal of this description can acquire. Some of them are very little inferior in speed to well bred greyhounds: hares they frequently run up to: rabbits they kill to a certainty, if the latter be at any distance from home: if near a warren, the dog invariably runs for the burrow, by doing which, he seldom fails in his attempt to secure his aim. His qualifications go still farther: in the nocturnal excursions of poachers, he will easily pull down a fallow deer, as soon as the signal is given for the pursuit; which done, he will explore his way to his master, and conduct him to the game, where-ever he may have left it.

LURE, *n. s.*, *v. n.* & *v. a.* Belg. *loore*; Teut. *leurre*; Fr. *leurre*. A bait or enticement; particularly applied to the enticement of hawks: to call a hawk; and generally to entice; draw; enveigle.

With empty hond men may no haukes lure.

Chaucer's Cent. Tales.

My faulcon now is sharp and passing empty,
And, till she stoop, she must not be full gorged,
For then she never looks upon her lure.

Shakspeare.

A great estate to an heir is a lure to all the birds
of prey round about to seize on him.

Bacon.

Standing near one that lured loud and shrill, I
had suddenly an offence, as if somewhat had broken,
or been dislocated in my ear, and immediately
after a loud ringing.

Id.

This stiffnecked pride, nor art nor force can bend,
Nor high-flown hopes to reason's lure descend.

Denham.

How many have with a smile made small account
Of beauty and her lures, easily scorned
All her assaults, on worthier things intent!

Milton.

A man spent one day in labour, that he might
pass the other at ease; and, lured on by the pleasure
of this bait, when he was in vigour he would pro-
vide for as many days as he could.

Temple.

A falconer Henry is, when Emma hawks;

With her of tarsels and of lures he talks. *Prior.*

Volumes on sheltered stalls expounded lie,
And various science lures the learned eye.

Gay.

Should you lure

From his dark haunt, beneath the tangled roots
Of pendant trees, the monarch of the brook,
Behove you then to ply your finest art.

Thomson.

Luxury

Held out her lure to his superior eye,
And grieved to see him pass contemptuous by.

Madden.

Some minds by nature are averse to noise,
And hate the tumult half the world enjoys,
The lure of avarice, or the pompous prize,
That courts display before ambitious eyes;
The fruits that hang on Pleasure's flowery stem,
Whate'er enchants them, are no snares to them.

Couper.

Vain, then, the enlivening sound of Fame's
alarms,

For hope's exulting impulse prompts no more:

Vain even the joys that lure to pleasure's arms,

The throb of transport is for ever o'er.

Beattie.

And leads him on from flower to flower,

A weary chase and wasted hour;

Then leaves him, as it soars on high,

With panting heart and tearful eye:

So beauty lures the full-grown child,

With hue as bright, and wing as wild.

Byron.

A LURE, in falconry, a device of leather in the
shape of two wings, stuck with feathers, and
baited with a piece of flesh, to call back a hawk
when at a considerable distance. See FALCONRY.
LURID, *adj.* Lat. *luridus*. Gloomy; dis-
mal.

Slow settling o'er the lurid grove,

Unusual darkness broods. *Thomson's Summer.*

LURK, *v. n.*

LURK'ER,

LURK'ING-PLACE,

OR AMBUSH.

Fieri potest à Greek
λῆπδω, curvo, inflecto,
says Minsheu. More
probably from LURCH,

which see. To lie in wait.

Take knowledge of all the lurking-places where he
hideth himself. *1 Sam. xxiii. 23.*

If sinners entice thee, consent not; if they say,
let us lay wait for blood, let us lurk privily for the
innocent. *Prov. i. 11.*

They lay not to live by their worke,

But theevisly loiter and lurke.

Tusser's Husbandry.

Far in land a savage nation dwelt,

That never tasted grace, nor goodness felt;

But like wild beasts, lurking in loathsome den,

And flying fast as roebuck through the fen,

All naked.

Faerie Queene.

Milbrook lurketh between two hills, a village of
some eighty houses, and borrowing his name from
a mill and little brook running there through.

Carew's Survey of Cornwall.

The wife, when danger or dishonour lurks,

Safest and seemliest by her husband stays.

Milton.

Doth not in every corner a Momus lurk, from the
venom of whose spiteful or petulant tongue no emi-
nency of rank, dignity of place, or sacredness of
office, can protect any person.

Barrow.

See

The lurking gold upon the fatal tree.

Dryden's Æneid.

The king unseen

Lurked in her hand, and mourned his captive queen;
He springs to vengeance.

Pope.

I do not lurk in the dark: I am not wholly un-
known to the world: I have set my

Swift.

Seeds of merciless disease.

Lurk in all that we enjoy;

Some that waste us by degrees,

Some that suddenly destroy.

Couper.

But one fair night, some lurking spies

Surprised and seized us both.

Byron.

LUS, a district of Persia in the eastern part
of the province of Mekran. It is of a circular form,
bounded on three sides by immense mountains.
The face of the country is flat and sandy, but
fertile in every species of grain. There are four
passes through the mountains, two of which lead
into Sinde, one into Mekran, and one into Ba-
louchistan. The chief can bring into the field
4000 irregular troops, and draws a revenue of
50,000 rupees. The towns and districts are go-
vernied by petty independent chiefs, owning the
supremacy of the khan of Lus. The capital is
Bayla; the chief maritime port is Sommeany.
Lus is supposed to be the ancient Oriz.

LUSAN, a town of the province and govern-
ment of Buenos Ayres, situate on the great road
from Buenos Ayres to Cordova, about thirty
miles west from the former city. Long. 59° 20'
W., lat. 34° 36' S.

LUSATIA, a margraviate large province of the German empire, lying between the Elbe and the Oder, and surrounded by Brandenburg, Bohemia, Silesia, and part of Saxony. It is divided into Upper and Lower Lusatia, formerly two distinct states, but which became subject to Saxony, since 1815. The superficial area of the whole is about 4250 square miles. Population 465,000.

Upper Lusatia is the southern and larger part, and consists in great part of a sandy plain; but a mountain ridge, called the Wohlische Kamm, runs along its south frontier. All the rivers here have their rise in these mountains, flow northward, and fall into the Oder or Elbe. The principal here are the Black Elster, which receives the Schwarzwasser, the Spree, and the Neisse; the Pulsnitz, which divides Upper Lusatia from Misnia; and the Queiss, which divides it from Silesia. Upper Lusatia supplies hardly the half of what is consumed by its inhabitants. Flax is cultivated, but it is necessary also to import a certain quantity for the use of the manufactures. The cattle are good, and the sheep have been improved of late by the introduction of merino rams; horses likewise are reared. Other objects of care are the rearing of poultry, particularly geese, and the breeding of bees; in the forests of the north, resin, pitch, and tar, are manufactured. The only mines are a few of iron in this part; but there are quarries of granite, basalt, lime, and freestone.

The wealth of this country is in its manufactures; of these, woollens are an important branch, and those of linen have improved, as well as those of cotton, leather, stockings, gloves, hats, wax, and tobacco. The government of Lusatia has been hitherto a limited monarchy, with a representative body, consisting of the four great lords called dynasts, the prelates, nobles, and deputies from free towns; but there is every reason to believe that this will not be continued. By the treaty of Vienna, the half of this province was annexed to Prussia, and is subjected to the new organisation of that monarchy, being included in the government of Liegnitz in Silesia. The part remaining to Saxony is computed only at 1170 square miles, and the population at 170,000.

Lower Lusatia, the northern part of the margraviate, now belongs entirely to Prussia. Its surface is computed at 1940 square miles. A great part of it is covered with sands; and on the sides of the rivers are a number of marshes. The principal rivers are the Oder, the Spree, and the Neisse. Some wheat, barley, millet, and buck-wheat are exported, and the culture of tobacco, flax, and hops, is considerable; but agriculture is considered in a backward state. The number of horses and cattle is small. Bees are reared in abundance; and there is no want of wood, the Spreewald being a forest of some note. The minerals are iron, clay, and chalk; the principal manufactures, linen and woollen; of the two, the former is the more considerable.

LUSCIOUS, *adj.* } Skinner says, from
LUSCIOUSLY, *adv.* } *luscious*, corruptly
LUSCIOUSNESS, *n. s.* } pronounced. Others
more probably from Gr. *λυσος*, sweet. Sweet
in a great or immoderate degree.

The food that to him now is as *luscious* as loches
shall shortly be as bitter as coloquintida.

Shakspeare.

Can there be a greater indulgence in God, than
to imbitter sensualities whose *lusciousness* intoxicates
us, and to clip wings which carry us from him?

Decay of Piety.

With brandished blade rush on him, break his
glass,

And shed the *luscious* liquor on the ground.

Milton.

Blown roses hold their sweetness to the last,
And raisins keep their *luscious* native taste.

Dryden.

Peas breed worms by reason of the *lusciousness* and
sweetness of the grain. Mortimer's Husbandry.

He will bait him in with the *luscious* proposal of
some gainful purchase. South.

See Louvet, patriot, pamphleteer, and sage;

Tempering with amorous fire his virtuous rage,

Formed for all tasks, his various talents see,

The *luscious* novel, the severe decree. Canning.

LUSH, *adj.* Ital. *liscio*. Of a dark, deep,
full color, opposite to pale and faint.

How *lush* and lusty the grass looks; how green!

Shakspeare.

LUSK, *adj.*

LUSK'ISH,

LUSK'ISHNESS, *n. s.*

LUSORIOUS, *adj.*

LU'SORY, *adj.*

Things more open to exception, yet unjustly con-

demned as unlawful; such as the *luscious* lots, dancing,
and stage-plays. Bishop Sanderson.

There might be many entertaining contrivances for
the instruction of children in geometry, and geogra-
phy, in such alluring and *luscious* methods, as would
make a most agreeable and lasting impression.

Watts on the Mind.

LUST, *n. s. & v. n.*

LUST'FUL, *adj.*

LUST'FULLY, *adv.*

LUST'FULNESS, *n. s.*

LUST'IED, or

LUST'HOOD,

LUST'ILY, *adv.*

LUST'INESS, *n. s.*

LUST'LESS, *adj.*

LUST'Y.

lustihood, vigor: bodily strength or ability;
sprightliness: lustily, stoutly; strongly; with un-
usual vigor or strength: **lustiness**, stoutness,
sturdiness; corporal vigor: **lustless**, destitute
of such strength or vigor: **lusty**, strong in health;
stout; vigorous.

I will divide the spoil; my *lust* shall be satisfied
upon them. Exodus xv. 9.

The mixed multitude fell a *lusting*; and the chil-
dren of Israel also wept, and said, Who shall give us
flesh to eat? Numbers.

Their eyes swell with fatness; and they do even
what they *lust*. Psalm lxxiii. 7.

The spirit that dwelleth in us *lusteth* to envy.

James iv. 5.

At the last out of a grove evin by
That was right godely and pleasant to sight
I see where there came singing *lustily*
A world of ladies, but to tell aright
Ther beauty grete lyith not in my might.

Chaucer

For he, whiche had his full pounce
Of all *lustes* at borde,

W^e designeth not to speake a word,
Onliche a crome for to yeue,
Whereof this poure might leue
Upon the yeste of his almesse.

Gower. Conf. Am., book vi. fol. 134.

Turning wrathful fire to *lustful* heat,
With beastly sin thought her to have defiled.
Faerie Queene.

A goodly personage,
Now in his freshest flower of *lusthyed*,
Fit to inflame fair lady with love's rage.
Spenser.

Fresh Clarion being ready dight,
He with good speed began to take his flight
Over the fields in his frank *lustiness*. Id.
This *lusty* lady came from Persia late,
She with the Christians had encountered oft. Id.
The Christian captives in chains could no way
move themselves, if they should unadvisedly *lust* after
liberty. Knolles.

Barbarossa took upon him that painful journey,
which the old king *lustily* performed. Id.

This our court, infected with their manners,
Shews like a riotous inn; epicurism and *lust*
Make it more like a tavern or a brothel,
Than a graced palace. Shakspeare. King Lear.

Reason and respect
Make livers pale and *lusthood* dejected.
Shakspeare.

I determine to fight *lustily* for him. Id.
If *lusty* love should go in quest of beauty,
Where should he find it fairer than in Blanch? Id.

Where there is so great a prevention of the ordi-
nary time, it is the *lustiness* of the child; but when
it is less, it is some indisposition of the mother.

Bacon's Natural History.

Trees will grow greater, and bear better fruit, if
you put salt, or lees of wine, or blood, to the root;
the cause may be, the increasing the *lust* or spirit of
the root. Bacon.

Virtue was represented by Hercules: he is drawn
offering to strike a dragon; by the dragon are meant
all manner of *lusts*. Peacham on Drawing.

They are immoderately given to the *lust* of the flesh,
making no conscience to get bastards. Abbot.

Eve saw, and *lusted*, so did they; this also was a for-
bidden fruit (mixed marriage), they *lusted*, tasted,
sinned, died. Bp. Hall.

When a temptation of *lust* assaults thee, do not
resist it by disputing with it, but fly from it, that is,
think not at all of it. Taylor's Holy Living.

Thence his *lustful* orgies he enlarged. Milton.

To have subdued their *lusts*, and mastered their
passions, would have proved far more difficult, than
to get advantage in scuffles with armed men. Barrow.

Giving sometimes prodigally; not because he
loved them to whom he gave, but because he *lusted*
to give. Sidney.

Inconstant man, that loved all he saw,
And *lusted* after all that he did love. Roscommon.

We yet may see the old man in a morning,
Lusty as health, come ruddy to the field,
And there pursue the chace. Otway.

There is no man that is intemperate or *lustful*, but
besides the guilt likewise stains and obscures his
soul. Tillotson.

All weigh our acts, and *whate'er* seems unjust,
Impute not to necessity, but *lust*. Dryden.

Cappadocian slaves were famous for their *lustiness*,
and being in good liking, were set on a stall to shew
the good *lust* of their body, and made to play tricks

before the buyers, to shew their activity and strength.

Id. Persius.
He has fought *lustily* for her, and deserves her.
Southerne.
Pope.

The *lust* of lucre.
Yet, pure from *lust* of blood their fire,
And from ambition's wild desire,
They triumphed but to save. Beattie.
Last noon beheld them full of *lustly* life,
Last eve in Beauty's circle proudly gay,
The midnight brought the signal-sound of strife,
The morn the marshalling in arms,—the day
Battle's magnificently stern array! Byron.

LUSTRAL, *adj.* } Lat. *lustralis*. Used for
LUSTRA'TION, *n. s.* } purifying: purification by
water.

Job's religious care
His sons assemblies, whose united prayer,
Like sweet perfumes, from golden censers rise;
He with divine *lustrations* sanctifies. Sandys.

That spirits are corporeal seems a conceit deroga-
tive unto himself, and such as he should rather la-
bour to overthrow; yet thereby he establisheth the
doctrine of *lustrations*, amulets, and charms.

Broune's Vulgar Errors.

Should Io's priest command
A pilgrimage to Meroe's burning sand;
Through deserts they would seek the secret spring,
And holy water for *lustration* bring. Dryden's Juvenal.

What were all their *lustrations* but so many solemn
purifyings, to render both themselves and their sacri-
fices acceptable to their gods? South.

His better parts by *lustral* waves refined,
More pure, and nearer to æthereal mind. Garth.
By ardent prayer, and clear *lustration*,
Purge the contagious spots of human weakness;
Impure no mortal can behold Apollo. Prior.

LUSTRAL DAY (dies lustricus), in antiquity,
the day on which the *lustrations* were performed
for a child, and its name given; usually the
ninth day from the birth of the boy, and the
eighth from that of a girl. Over this festival the
goddess Nundina was supposed to preside; the
midwives, nurses, and domestics, handed the
child backwards and forwards, around a fire
burning on the altars of the gods, after which they
sprinkled it with water; hence this *fest* had the
name of amphidromia. The old *women* mixed
saliva and dust with the water. The whole ended
with a sumptuous entertainment. The parents
received gifts from their friends on this occasion.
If the child was a male the door was decked
with an olive garland; if a female with wool,
denoting the work about which women were to
be employed.

LUSTRAL WATER was used by the ancients in
their ceremonies to sprinkle and purify the peo-
ple. From them the Roman Catholics pre-
bably borrowed the holy water used in their
churches.

LUSTRATIONS, in antiquity, were ceremonies by
which the ancients purified their cities, fields,
armies, or people, defiled by any crime or impu-
rity. Some of these were public, others private.
There were three methods of performing *lustra-
tion*, viz. by fire and sulphur, by water, and by
air; which last was done by fanning and agi-
tating the air round the thing to be purified.
Some of these could not be dispensed with; as
lustrations of houses, in the time of a plague, or

upon the death of any person : others were done at pleasure. The public lustrations at Rome were celebrated every fifth year; when they led a victim thrice round the place to be purified, and in the mean time burnt a great quantity of perfumes. Their country lustrations, which they called *ambarvalia*, were celebrated before they began to reap their corn : in those of the armies, which they called *armilustria*, some chosen soldiers, crowned with laurel, led the victims, which were a cow, a sheep, and a bull, thrice round the army ranged in battle array, in the field of Mars, to whom the victims were afterwards sacrificed, after pouring out many imprecations upon the enemies of the Romans. The lustrations of their flocks were performed thus: the shepherd sprinkled them with pure water, and thrice surrounded his sheepfold with a composition of savin, laurel, and brimstone set on fire; and afterwards sacrificed to the goddess Pales an offering of milk boiled, wine, a cake, and millet. Private houses were lustrated with water, a fumigation of laurel, juniper, olive tree, savin; and the victim commonly was a pig. Lustrations made for particular persons were commonly called expiations, and the victims *piacula*. In their lustratory sacrifices, the Athenians sacrificed two men, one for the men of their city, and the other for the women. They cast into the river, or at least out of the city, the animals, &c., that had served for a lustration or sacrifice of atonement; and thought themselves threatened with some great misfortune when by chance they trod upon them. Part of these ceremonies were abolished by Constantine and his successors; the rest subsisted till the Gothic kings were masters of Rome; under whom they expired.

LUSTRE, *n. s.*) Fr. *lustre*. Splendor;
LUSTROUS, *adj.*) brightness; glare; glitter:
 hence a scone bright with lights, or designed to
 hold them : eminence; renown.

You have one eye left to see some mischief on him,
 --lest it see more, prevent it; out, vile jelly!
 Where is thy *lustre* now? *Shakspeare. King Lear.*

Noble heroes, my sword and yours are kin, good
 sparks and *lustrous*. *Shakspeare.*

The more *lustrous* the imagination is, it filleth and
 fixeth the better. *Bacon's Natural History.*

To the soul time doth perfection give,
 And adds fresh *lustre* to her beauty still. *Davies.*

Neither doubt I, but that, as metals receive the
 more *lustre* with often rubbing, this truth, the more
 agitation it undergoes, shall appear every day more
 glorious. *Bp. Hall.*

Charity hath a good eye, which is not offended or
 dazzled with the *lustre* of its neighbour's virtue, or with
 the splendour of his fortune, but vieweth either of them
 steadily with pleasure, as a very delightful spectacle.

The scorching sun was mounted high,
 In all its *lustre*, to the noon-day sky.

His ancestors continued about four hundred years,
 rather without obscurity than with any great *lustre*.
Wotton.

Pass but some fleeting years, and these poor eyes,
 Where now without a boast home *lustre* lies,
 No longer shall their little honours keep,
 But only be of use to read or weep. *Prior.*

All nature laughs, the trees are fresh and fair,
 The sun's mild *lustre* warms the vital air. *Pope.*

Ridotta sips, and dances till she see
 The doubling *lustres* dance as quick as she.

Id.
 I used to wonder how a man of birth and spirit
 could endure to be wholly insignificant and obscure
 in a foreign country, when he might live with *lustre*
 in his own. *Swift.*

With various *lustres* these light up the world,
 Which death puts out, and darkens human race.

Their proficiency will make your defects the more
 obvious to yourself: and by the *lustre* of their virtues
 you will better see the deformity of your vices.

Mason.
 Before the eastern flame
 Rose crimson, and deposed the stars,
 And called the radiance from their cars,
 And filled the earth, from his deep throne,
 With lonely *lustre* all his own. *Byron.*

Unheeding, unthankful, we bask in the blaze,
 While the beams of the sun in full majesty shine;
 When he sinks into twilight, with fondness we gaze,
 And mark the mild *lustre* that gilds his decline.

Canning.
LUSTRE, in commerce, denotes the gloss on
 any thing, particularly on manufactures of silk,
 wool, or stuff. It is likewise used to denote the
 composition or manner of giving that gloss. The
 lustre of silks is given them by washing in soap,
 then clear water, and dipping them in alum water
 cold. To give stuffs a beautiful lustre: for
 every 8 lbs. of stuff allow $\frac{1}{4}$ lb. of linseed; boil
 it half an hour, and then strain it through a cloth,
 and let it stand till it is turned almost to a jelly:
 afterwards put $1\frac{1}{2}$ oz. of gum to dissolve twenty-
 four hours; then mix the liquor, and put the
 cloth into this mixture, take it out, dry it in the
 shade, and press it. If once doing is not suffici-
 ent, repeat the operation. Curriers give a lustre
 to black leather, first with juice of barberries,
 then with gum arabic, ale, vinegar, and Flanders
 glue, boiled together. For colored leather, they
 use the white of an egg beaten in water. Mo-
 roccos have their lustre from juice of barberries,
 and lemon or orange. For hats, the lustre is
 frequently given with common water; some-
 times a little black dye is added; the same lustre
 serves for furs; except that for very black furs
 they sometimes prepare a lustre of galls, cop-
 peras, Roman alum, ox's marrow, and other in-
 gredients.

LUSTRUM, in Roman antiquity, a general
 muster and review of all the citizens and their
 goods, which was performed by the censors
 every fifth year, who afterwards made a solemn
 lustration. See **LUSTRATION**. This custom was
 first instituted by Servius Tullius, about A. U. C.
 180.

LUTARIOUS, *adj.* Lat. *lutarius*. Living in
 mud; of the color of mud.

A scaly tortoise-shell of the *lutarius* kind.

Grew.
LUTE, *n. s. & v. a.* ? Fr. *luth, lut*. Astringed
LUTANIST. \S instrument of music.

And before them went minstrels many,
 As harps, pipes, *lutis*, and sautry,
 All in grene. *Chaucer.*

Orpheus with his *lute* made trees,
 And the mountain tops that freeze,
 Bow themselves when he did sing. *Shakspeare.*

May must be drawn with a sweet countenance,
upon his head a garland of roses, in one hand a *lute*.
Peucham.

A *lute* string will bear a hundred weight without
rupture, but at the same time cannot exert its elas-
ticity. *Arbutnot.*

In a sadly pleasing strain,
Let the warbling *lute* complain.

Pope's St Cecilia.
Lands of singing or of dancing slaves,
Love-whispering woods, and *lute*-resounding waves.
Dunciad.

LUTE, n. s & v. a. Fr. *lut*; Lat. *lutum*. A com-
position like clay, with which chemists close
their vessels: to close up vessels with luting.

Take a vessel of iron, and let it have a cover of
iron well *luted*, after the manner of the chemists.

Bacon's Natural History.
Iron may be so heated, that, being closely *luted* in
a glass, it shall constantly retain the fire.

Wilkins's Mathematical Magick.
Some temper *lute*, some spacious vessels move,
These furnaces erect, and those approve. *Garth.*

Glaziers' putty is a very good *lute* for all the com-
mon purposes of a laboratory.

Purkes's Chemical Catechism.

The *LUTE* consists of four parts, viz. the table,
the body or belly, which has nine or ten sides;
the neck, which has nine or ten stops or divisions,
marked with strings; and the head or cross,
where the screw for raising and lowering the
strings to a proper pitch of tone are fixed. In
the middle of the table there is a rose or passage
for the sound; there is also a bridge that the
strings are fastened to, and a piece of ivory be-
tween the head and the neck, to which the other
extremities of the strings are fitted. In playing
the strings are struck with the right hand, and
with the left the stops are pressed. See *HARR.*

LUTETIA, or *LUTETIA PARISIORUM*, in an-
cient geography, a town of the Parisii, in Gallia
Celtica, situated in an island in the Sequana, or
Seine. It received its name, as some suppose,
from the great quantity of clay (*lutum*) in its
neighbourhood. Julius Cæsar fortified and em-
bellished it, from which circumstance some
authors call it *Julii Civitas*. Julian the apostate
resided there for some time: it is now Paris.

LUTHER (Martin), one of the most intrepid
and most successful of reformers, was the son
of a German miner, and born at Eisleben in
Saxony, November 10th, 1484. He was edu-
cated at the university of Erfurt, for the legal
profession, but he suddenly imbibed a distaste
for the world, and entered a convent of Augus-
tine friars. He here distinguished himself by his
zeal for the established faith; and is said to have
declared that he would have brought the first
faggot to burn Erasmus, who had written against
ecclesiastical celibacy, the invocation of saints,
and other of the Romish superstitions. A jour-
ney which he himself, however, made in 1510 to
Rome, as a delegate from the friars of his order,
is said to have convinced him of the prevailing
corruptions of the church; and this appears to
have been increased by his becoming acquainted
with the writings of Huss. In 1512 Luther was
made professor of divinity in the newly established
university of Wittemberg; and he began to propa-
gate his opinions in his public lectures. His per-

sonal character had no slight influence in the
great revolution which he was instrumental in ac-
complishing. Of a bold natural temper, animated
and supported by a primitive faith, he possessed
also an ardent imagination, good eloquence, an
unwearied pen, and a perseverance of disposition
which on all great occasions, set opposition at
defiance. Thus qualified, his lectures procured
him very extensive influence, more especially as
the purity of his life was in entire correspondence
with his instructions, so that many excellent men
were thus strongly pre-disposed to comply with
the changes which he soon after suggested.

While Luther was thus engaged, a Dominican
friar of the name of Tetzel came into the neigh-
bourhood of Wittemberg, publishing indulgen-
cies. There appears to be no just foundation for
the surmise that has been thrown out by some
writers, that he was influenced in this conduct
by a petty jealousy for the credit of his order, the
sale of indulgencies having been in this instance
entrusted to the Dominican friars, of whom Tetzel
was one, rather than to the Augustinians; neither
is there any decided evidence that these latter were
accustomed to have the sale of indulgencies com-
mitted to them. The truth is, that this business
was conducted in the most flagrant and shameful
manner, and Luther had by this time too full an
acquaintance with the Holy Scriptures, not to
perceive the antichristian character and immoral
tendency of these practices. He did not rest
satisfied with preaching against them; he pub-
lished twenty-five theses, expressive of his views
on the subject, stating them as matters of dispu-
tation and enquiry, and inviting the learned to
disprove them either by personal conference or
writing. At first no opponent appeared, but a
host of champions soon arose to defend those
opinions, in favor of which the wealth and power
of the church were united. Tetzel assembled his
monks to aid him in writing against Luther, pub-
licly denounced him as a heretic, and committed
his propositions to the flames; threatening their au-
thor with a like fate. These proceedings, however,
did not serve his cause; the intrepid reformer
only now found himself compelled to enter more
fully into the matters of dispute, and though he as
yet did not suspect the change that was about to be
effected, he was provoked by his adversaries to
discuss not only the subject of indulgencies, but
the sacraments, the distinction between divine
and human laws, the nature of vows, &c. In
addition to this Eckius, in order to expose him to
the full tide of ecclesiastical wrath, brought for-
ward the question of the pope's supremacy. The
people too began to discuss the authority of the
canon law, and even that of the pope himself.

The court of Rome at first despised these new
doctrines, and considered the whole contest as
nothing else than the squabbles of monks. It
was not long, however, before Leo X. was roused
from his lethargy, and Luther was summoned to
appear before him at Rome; but, Frederick the
elector of Saxony interposing in his behalf, the
pope referred the matter to the judgment of car-
dinal Cajetan, then the papal legate at Augsburg.
It was during the conferences that were held at
this place, that Luther wrote to Melancthon in the
following terms, at once illustrative of the true

motives which actuated him, and the courage with which he was endowed. 'There is nothing new or remarkable here, unless it be that the whole city is full of the rumor of my name, and every one is desirous of seeing this modern Erostratus, this new incendiary. Persevere manfully in what you are doing for the right instruction of youth; for my part I am ready, if such be the will of God, to suffer any thing for you, and for them. I would rather die than recant any part of the truth that I have spoken, or furnish those with an occasion of disparaging the most useful studies, who are both the silliest and bitterest enemies of sound learning. Italy is plunged in the profoundest Egyptian darkness; all are ignorant of Christ, and the things that are Christ's. Yet these are the lords and masters of our faith and morals! Thus the anger of God is evinced in the accomplishment of that prediction, 'I will give children to be their princes, and women shall rule over them.' Farewell, my dear Philip, and pray fervently, that the divine displeasure may be averted.'

The endeavours of Cajetan to reconcile Luther to the Roman see were unsuccessful; but Miltitz, who succeeded him in his mission, prevailed on the reformer to write to the pope in submissive terms. The violence, however, of the papists frustrated these endeavours, and led Luther to proceed in the investigation of truth, and to redouble his efforts in its propagation. At this time he seems not to have entertained a doubt of the authority of the pope; but the haughty conduct of Cajetan, and the arrogant requisition that Luther should retract what he had uttered against indulgencies, made the friends of the latter very fearful about his safety; they therefore prevailed on him suddenly to withdraw from Augsburg to Wittenberg. Before his departure he appealed from the pope ill informed at that time concerning his cause, to the pope when he should be better informed: and soon after from the pope himself to a general council. Incensed at Luther's departure, and at the appeal which he had published, Cajetan called upon the elector to send him prisoner to Rome, or to drive him from his dominions; but Frederick declined submitting to this injunction, and openly testified his concern for the safety of the reformer. Leo in the mean time fulminated his anathemas, against all who should teach any doctrines opposite to the virtue of indulgencies, and the reformer might have fallen a victim to the rage of his enemies, had not the death of the emperor Maximilian turned off their attention to a subject of much greater importance at present, the election of his successor. During the discussions and negotiations which took place on this occasion, Luther had so many opportunities of observing the corrupt state of the Roman court, that he soon began to suggest doubts of the divine origin of the pope's authority, and of the foundations of the wealth and power of the papacy. It was then that Leo, perceiving there was no longer any hope of reclaiming so incorrigible a heretic, proceeded with the assistance of his cardinals to prepare the sentence of excommunication against him, which was published on the 10th of June, 1520. Forty-one propositions, taken from our

reformer's works, were condemned as heretical, scandalous, and offensive to pious ears; all persons whatsoever were prohibited from reading his writings under the penalty of excommunication, and ordered, if they possessed any of them, to commit them to the flames; he himself was called upon publicly to retract his errors within sixty days, and burn his books, or be pronounced contumacious, excommunicated, and delivered to Satan: while all secular princes were required to seize his person, that he might be punished as he deserved. Luther, nothing daunted by this sentence, appealed again to a general council, denounced the pope as antichrist, declaimed against his tyranny more vehemently than ever, and, having called together all the professors and students of Wittenberg, he, in the presence of a great multitude of spectators, threw the books of the canon law, with the bull of excommunication, into the flames; extracting at the same time from the canon law those parts in which the pope's power was set forth in the most extravagant terms, and publishing them with remarks to point out the wickedness of such doctrines, and their manifest tendency to the subversion of civil government.

The situation of our reformer soon became very critical; Charles V., the new emperor, desirous of securing the pope's favor, was disposed to treat him with great severity; he therefore was ready to yield to the wishes of the papal legates in Germany, who urged the immediate condemnation of Luther by the diet then sitting at Worms. The diet, however, considering so abrupt a measure as altogether unjust and without precedent, insisted that he should make his appearance in person, and declare his adherence to, or rejection of, those sentiments which had brought upon him the displeasure of the church. The emperor and all the princes through whose territories he had to pass promised him a safe conduct; and though his friends, anxious for his safety, would have persuaded him not to adventure himself into such an assembly, Luther persisted in his determination to go, declaring with his characteristic boldness, that he would go in the name of the Lord, though there should be as many devils in Worms, as there were tiles on the houses. At Worms the reception he met with was most flattering; multitudes crowded to see him, he was daily visited by princes and persons of high rank, and no man, however elevated his station, could be held in greater consideration. On appearing before the diet, he candidly admitted that he had been too acrimonious in his publications, refusing at the same time to renounce his opinions, unless he should be convinced of their falsehood by an appeal to the word of God. Some of the clergy proposed to deal with him in the same manner as the council of Constance had done with Huss and Jerome; but the diet would not consent to so base an act, after the promise of safe conduct which they had given him; Luther therefore departed in safety. He had not long left the city before a decree was issued in the name of Charles and the authority of the diet, pronouncing him an obstinate heretic, depriving him of all his rights as a subject, and calling upon every one to seize

him, as soon as the term of his protection should expire. In this extremity, the kindness and address of his friend, the elector of Saxony, suggested a prudent stratagem for the preservation of Luther. As he was returning from the diet, near Altenstrain in Thuringia, a body of horsemen in masks suddenly rushed out of a wood, where they had been lying in wait, surrounded him, and after dismissing his attendants, carried him to the strong castle of Wartenburg, or Wartenburg, not far distant. Here he continued for nine months, being supplied by the elector's order with every thing he needed, or which might be agreeable to him; and the place of his retreat being carefully concealed. During this time he once secretly visited Wittenberg, being urged to this step by some evils which were beginning to discover themselves among his friends, especially the conduct of Carlostadt. This reformer held some important truths, in which he differed from Luther, particularly with regard to the sacrament, on which point the Lutherans symbolised greatly with the papists; but he was too violent in his measures to promote the cause of the reformation, and appears chargeable with no small degree of envy at Luther's growing popularity. The latter could not restrain his impatience at these circumstances, and hastened therefore on the 3d of March, 1522, to Wittenberg. In his solitude at Wartenburg, which he called his Patmos, he was engaged in writing several treatises to confute his adversaries, and revive the spirit of his followers, whom the sudden disappearance of their leader had contributed greatly to discourage. He also at the same time made preparations for the greatest and most useful work he had yet attempted, the translation of the Holy Scriptures into the German language. With a view to this important labor, he had during the preceding summer applied himself assiduously to the study of the Greek and Hebrew tongues. Several versions had appeared previously to this, particularly at Nuremberg, in the years 1477, 1483, 1490, and in 1518 at Augsburg, but they were so badly executed that they were not permitted to be read. Luther first published the gospels of Matthew and Mark; these were followed by the epistle to the Romans; the other books succeeded, until about the month of September 1522 the whole New Testament was put into circulation. He next proceeded to the translation of the Old Testament, on which he and his coadjutors bestowed incredible pains, and one book after another was published, until the whole of this laborious work was completed in the year 1530. His principal fellow laborers in this great undertaking were Melancthon, Caspar Cruciger, Justus Jonas, John Bugenhagenius or Pomeranus, Matthew Auregallus; and the corrector of the press, George Rorarius.

In the year 1521 Luther was called to enter the lists against no less an opponent than Henry VIII., king of England. This monarch then inflamed with violent zeal for the doctrines of the church of Rome, and for showing his own skill in theological polemics, wrote a treatise *Of the seven Sacraments*, in answer to Luther's work, entitled *Of the Captivity of Babylon*. He presented his book to Leo, who was so well pleased

with it, that he conferred on its author the title of Defender of the Faith. Luther answered him with considerable severity, treating him and his work with great contempt. Our reformer now declared open war with the pope and the clergy; and published attacks upon the pope's bull, and against the order of the bishops. He wrote also a letter to the assembly of the Bohemian states, exhorting them to continue steadfast, and not to return to the Romish communion. Ferdinand archduke of Austria, and some other princes, having issued severe edicts against all who should read his translation of the New Testament, he published a treatise, *Of the Secular Power*, in which he designated them as tyrants and impious persons. At the diet, which was this year held at Nuremberg, Adrian VI., who had succeeded Leo, sent his brief, in which he inveighs most bitterly against Luther for still continuing to teach and publish his heretical doctrines; declares, that he thinks it very strange that a nation so religiously disposed should be seduced by a wretched apostate friar, and calls upon the diet to compel him and his adherents to return to their duty, or if they remained obstinate, to treat them according to the laws of the empire, and the edict of the diet of Worms. Another hostile edict was published on the 6th of March 1523; but it availed little in checking Lutheranism, which still triumphed on every side. Luther wrote many pieces this year, among which may be particularly mentioned one on the Dignity and Office of the Supreme Magistrate, with which the elector of Saxony is said to have been much pleased. About this time also he wrote a letter to the Waldenses, or Pickards of Bohemia and Moravia, who had requested his opinion 'about worshipping the body of Christ in the eucharist. He also addressed to the senate and people of Prague a work on the Institution of Ministers of the church; drew up a form of saying mass, and published a satirical work, entitled an Example of Popish Doctrine and Divinity, directed against monastic vows and those who professed them. In consequence of another piece, which he wrote against the vows of virginity, in the preface to his commentary on 1 Cor. viii., nine nuns, one of whom was Catharine de Bore, left the nunnery at Nimptschen, and aided by Leonard Coppen, a citizen of Torgau, came to Wittenberg. Luther wrote a book in the German language, in which he highly commended this act, and compared the deliverance of these nuns to that of the souls which Jesus Christ has delivered by his death. This year two of his followers were burned at Brussels in the month of July, being the first that suffered martyrdom for the reformed doctrine. On this subject Luther wrote a treatise; he also sent a letter of consolation to three noble ladies, who on account of reading his books had suffered banishment from the duke of Saxony's court.

In the year 1524 our reformer published Remarks on the Canonisation of Benno, bishop of Meissen, in the time of Gregory VII.: the work was entitled, *Against the New Idol and Old Devil set up at Meissen*. This year also the dispute on the freedom of the will commenced between him and Erasmus. The bold, uncompro-

missing spirit of the reformer could ill brook the timid and trimming policy of Erasmus, who, although he discovers in some of his writings, his contempt of the priests, had not sufficient courage to take part with the friends of truth, and too frequently lent himself to subserve the designs of their enemies. Urged by the papists to write against Luther, and desirous to free himself from the suspicion of heresy, he produced what he called a diatribe or conference about free will. Luther replied to him in rather severe terms, entitling his book a *Treatise of the Servitude of Man's Will*, which produced a rejoinder from Erasmus, entitled *Hypersapistes*. About the end of this year Luther threw off the habit and obligations of a monk, and thus prepared the way for his marriage, which took place a few months afterwards. In the mean time he lost two of his friends, whom he much valued, Nesenus, who was suddenly drowned in the Elbe, and Henry von Gutphen, who was called to suffer martyrdom for the truth, and perished by the rage of the clergy as he was returning from Holstein, whither he had gone to preach the reformed doctrines. On the 5th of May, 1525, he was called to mourn over a still greater loss in the death of Frederick, the elector of Saxony, who finished his course with that peaceful serenity which was highly creditable to his new faith. As this worthy prince, however, was succeeded by his brother John, an equally warm friend to the reformed religion, but more bold and decided in its support, Luther met with no opposition, but was rather encouraged in all his plans; so that a new order of worship and administration of the sacraments, in the German tongue, was approved by him and introduced gradually into the Saxon churches. Of Luther's marriage, which took place on the 13th of June in the same year, many of his friends disapproved: some considering it at least untimely, as the death of the elector was yet recent, and as Germany was at this time involved in all the miseries of war. Luther, however, boldly defended himself; 'I took a wife,' says he, 'in obedience to my father's commands, and hastened the consummation, to prevent impediments and stop the tongues of slanderers.' He also stated (and this was sufficiently probable) that he did it to further his grand design of opposing the popish corruptions. He was very happy in this union. His activity, however, did not at all abate; he was still as zealously as ever employed in the great cause he had undertaken; and held a conference at this period with Zuinglius and the Swiss divines on the subject of the sacramental controversy. Both parties, perhaps, too stiffly contended for their particular views; but it is to their honor, that each retired from their discussion, manifesting Christian affection for their brethren, and imploring the divine blessing upon them.

The year 1530 was rendered remarkable by the assembling of the diet of Augsburg, to which the reformers presented their confession of faith and practice, well known by the name of the Augsburg Confession (see the ARTICLES PROTESTANT and REFORMATION). Though it was not deemed prudent that Luther, who had been proscribed by the edict of Worms, should make his appear-

ance at Augsburg; yet he was in waiting at Coburg, in Franconia, for the purpose of consultation, if necessary, and he revised the copy of the Confession, which had been previously drawn up by Melancthon. During the discussion that ensued, and particularly after the distressful conclusion of the conference and the severe decree of the diet, his counsel was of essential benefit to his brethren. The cause of the Reformation had now taken so deep a root that the united efforts of the pope and the emperor were unable to stop its progress, and Luther had comparatively little to do, but to contemplate the great work he had been the instrument in effecting; to exhort and advise the princes, and states, that had adopted his doctrines; and to publish such works as might be necessary for the confutation of his enemies and the encouragement of his friends. His undaunted spirit disregarded alike the threats of the emperor and the bulls and anathemas of the pope; although Melancthon and others were at times very much shaken by these things. In 1533 we find him employed in penning a letter of consolation to the citizens of Oschatz, who had suffered much for their adherence to the Augsburg confession; and nearly at the same period he engaged in a controversy with George, duke of Saxony, so bitter an enemy to his doctrines, that he had even compelled his subjects to swear they would never embrace them. Notwithstanding this sixty or seventy of the citizens of Leipsic, having conferred with Luther on some point of difficulty, ventured to desert the Catholic system; on which the duke bitterly complained to the elector John.

In 1534 he began to print his version of the Bible in the German language, under the sanction of the elector. It was published early in the next year; about which time he also wrote a piece against masses and the consecration or priests, in which he mentions a conference, he supposes he had with the devil on these subjects. In February 1537 he was called to attend a meeting of the confederated protestant princes at Smalkald, but was unable to go in consequence of a serious indisposition, with which he was seized. It was a severe attack of the stone, notwithstanding which, he would set out on his journey. As he was carried along, he made his will, leaving to his friends his hatred of popery, agreeably to a saying he often used, *Pestis eram vivus, moriens ero mors tua, papa*. He, however, began to amend the very first night after he set out, and soon afterwards recovered. Pope Pius III., being now sensible that the Protestants could not be compelled to retract their opinions, began to advise a reform of the church and clergy; and even talked of calling a council for the purpose. This Luther ridiculed in a frontispiece to one of his works, representing the pope on a throne, with his cardinals around him, having foxes tails, and, as Melchior Adam expresses it, seeming *Sursum et deorsum repurgare*. About the same period he published a Confutation of the pretended grant of Constantine to Sylvester, bishop of Rome: and some of John Huss's letters to the Bohemians, written from the prison of Constance. In 1540 he paid a visit to Melancthon, who had been taken very ill on his way to the diet of Haguenaw, and lay at Vinaria in a

state of extreme weakness and dejection; his counsels and prayers on this occasion were of great service to his friend, who was soon after restored to him.

But the departure of our great reformer himself was now hastening. It occurred in the year 1546, just at the time, when, owing to the persecuting measures which were then beginning to be concerted, his presence was apparently most necessary to the Reformation. In the latter part of the former year he paid a visit to his native country, in company with Melancthon; and, soon after his return, was summoned thither again, at the earnest request of the earls of Mansfeldt, to adjust some differences that had arisen about the limits of their territories. Having, therefore, preached for the last time at Wittemberg on the 17th of January, he left it on the 23d, and staid three days at Halle in Saxony with Justus Jonas. Passing the river on the 28th, accompanied by his three sons and his friend Dr. Jonas, they were in some danger; on which he said rather facetiously to the doctor, 'Do not you think it would rejoice the devil exceedingly, if I and you, and my three sons should be drowned?' On entering the territory of Mansfeldt he was received very honorably, and attended by more than 100 horsemen, but was now so extremely ill that it was apprehended he would die on the road. Repeated attacks of the stone had gradually undermined his constitution, and he expired early in the morning of the 18th of February at Eisleben, his native place. His body was put into a leaden coffin, and carried with great pomp to the church, where his friend Dr. Jonas preached. It was the wish of the earls of Mansfeldt that his remains should be buried in their dominions; but, as the elector of Saxony insisted on their being removed to Wittemberg, he was removed and interred there with the highest honors that had ever been paid to a private individual; princes, nobles, and students, attending the procession, and Melancthon delivering his funeral oration. Numberless lies were propagated by the papists about his death; some even asserting that the devil strangled him. After his decease his works were published at Wittemberg in 7 vols. folio. He had three sons by his wife Catherine de Bore, who survived him several years.

LUTHERANISM, the sentiments of Martin Luther. This system has undergone some alterations since the time of its founder. Luther at one time rejected the epistle of St. James, thinking it inconsistent with the doctrine of St. Paul, in relation to justification; he had also doubts about the Apocalypse: both of these books are now received as canonical in the Lutheran church. He reduced the number of sacraments to two, viz. baptism and the eucharist; but he believed the impanation, or consubstantiation, that is, that the matter of the bread and wine remains in conjunction with the body and blood of Christ; and in this article the main difference between the Lutheran and English churches consists. Luther maintained, however, the mass to be no sacrifice; exploded the adoration of the host, auricular confession, meri-

torious works, indulgencies, purgatory, the worship of images, and other errors, which had crept in during the corrupt times of the Romish church. He also opposed the doctrine of free will, maintained predestination, and asserted that justification is solely by the imputation of the merits and satisfaction of Christ. He likewise opposed the Romish fasts, monastic vows, the celibacy of the clergy, &c.

LUTHERANS, the Christians who follow the opinions of Martin Luther. See **LUTHER**. The Lutherans differ least of all Protestants from the Romish church; as they affirm that the body and blood of Christ are materially present in the sacrament of the Lord's supper, though in an incomprehensible manner; they likewise represent some religious rites and institutions, as the use of images in churches, the distinguishing vestments of the clergy, the private confession of sins, the use of wafers in the administration of the Lord's supper, the form of exorcism in the celebration of baptism, and other ceremonies of the like nature, as tolerable, and some of them even useful. With regard to the divine decrees they maintain that they respect the salvation or misery of men, in consequence of a previous knowledge of their sentiments and characters, and are not free and unconditional, or founded on the mere will of God. Towards the close of the seventeenth century the Lutherans began to entertain a greater liberality of sentiment than they had before adopted; though in many places they persevered longer in severe and despotic principles than other Protestant churches. Their public teachers now enjoy an unbounded liberty of dissenting from the decisions of those creeds which were once deemed almost infallible rules of faith and practice, and of declaring their dissent in the manner they judge most expedient: and too many of them it is to be feared have abused this liberty into absolute latitudinarianism in doctrine. Mosheim attributes this change in their sentiments to the maxim which they generally adopted, that Christians are accountable to God alone for their religious opinions; and that no individual can be justly punished by the magistrate for his erroneous opinions, while he conducts himself like a virtuous and obedient subject, and makes no attempt to disturb the peace and order of civil society. Protestantism on the continent has certainly declined considerably from the standard of the Reformation. See **PROTESTANTISM**.

LUTHERN, in architecture, a kind of window over the cornice, in the roof of a building; standing perpendicularly over the naked of a wall, and serving to illuminate the upper story. Lutherans are of various forms; as square, semicircular, round, called bull's eyes, flat arches, &c.

LUTTERWORTH, a market town of Leicestershire, seated on the Swift, with a handsome church, and lofty steeple, containing above 1600 inhabitants. The whole church was repaired in 1740, and the interior made new, except the pulpit, which is preserved with great veneration, in memory of the reformer Wickliff, who was rector of this place, and died suddenly in 1387, whilst hearing mass. The chair in which he expired is also preserved with great care: his

body was buried in the church, but afterwards taken up and burned. It has a market on Monday, and is fourteen miles south of Leicester, and eighty-eight N. N. W. of London.

LUTTI (Benedict), an eminent painter, born at Florence in 1666. He was the disciple of Antonio Dominico Gabiani, and was judged equal to his master; he painted easel pieces, and his works were much valued in England, France, and Germany. The emperor knighted him; and the elector of Mentz sent him a cross set with diamonds. Lutti was never satisfied with finishing his pictures; yet, though he often retouched them, they never appeared labored. He died in 1724.

LUX, or
LUX'ATE, *v. a.* } Fr. *luxer*; Lat. *luro*. To
LUXA'TION, *n. s.* } put out of joint; to dis-
 joint.

If it be such pain to die, what is it to be ever dying? and, if the straining and *luxation* of one joint can so afflict us, what shall the racking of the whole body, and the torturing of the soul, whose animation alone makes the body to feel and complain of smart.

Bp. Hall.

Descending careless from his couch, the fall
 Luxed his joint neck, and spinal marrow bruised.

Philips.

Consider well the *luxated* joint, which way it slipped out; it requireth to be returned in the same manner.

Wiseman.

The undue situation or connexion of parts, in fractures and *luxations*, is to be rectified by chirurgi- cal means.

Floyer.

LUXE, *n. s.* } Fr. *luce*; Lat. *luxus*,
LUX'RIANCE, *n. s.* } loosed. Voluptuousness:
LUX'RIANCY, } luxuriance, luxuriany,
LUX'RIANT, *adj.* } exuberance of growth:
LUX'RIATE, *v. n.* } luxuriant, exuberant; su-
LUX'RIOUS, *adj.* } perfluous in growth: to
LUX'RIOUSLY, *adv.* } luxuriate is to grow or
LUX'URY, *n. s.* } shoot forth in this man-
 ner: *luxurious* is either administering or addicted to voluptuous pleasure: *luxury*, pleasure; delicious or luscious fare; lewdness.

Urge his hateful *luxury*,
 His beastly appetite in change of lust,
 Which stretched unto their servants, daughters,
 wives.

Shakspeare.

She knows the heat of a *luxurious* bed:
 Her blush is guiltiness, not modesty.

Id.

Hotter hours you have
Luxuriously picked out.

Id.

Young trees of several kinds set contiguous in a fruitful ground, with the *luxury* of the trees will in- corporate.

Bacon.

A fluent and *luxurious* speech becomes youth well, but not age.

Id. Essays.

Envy is a weed that grows in all soils and cli- mates, and is no less *luxuriant* in the country than in the court.

Clarendon.

Egypt with Assyria strove
 In wealth and *luxury*.

Milton.

Till more hands
 Aid us, the work under our labour grows

Luxurious by restraint. *Id. Paradise Lost.*

Luxurious cities, where the noise
 Of riot ascends above their loftiest towers.

Milton.

The mantling vine gently creeps *luxuriant*.

Id.

Than in England, there is no where more true zeal in the many forms of devotion, and yet no where more knavery under the show and pretences

no where more abandoned libertines; more refined *luxurists*.

Sir W. Temple.

If the fancy of Ovid be *luxuriant*, it is his charac- ter to be so. *Dryden's Preface to Ovid's Epistles.*

Repel the Tuscan foes, their cities seize,
 Protect the Latians in *luxurious* ease.

Dryden.

Where mice and rats devoured poetick bread,
 And with heroick verse *luxuriously* were fed.

Id.

Flowers grow up in the garden in the greatest *luxuriance* and profusion.

Spectator.

Ile cut the side of the rock for a garden, and, by lay- ing on it earth, furnished out a kind of *luxury* for a hermit.

Addison.

The power of wealth I tried,
 And all the various *luxe* of costly pride.

Prior.

A fungus prevents healing only by its *luxuriance*.

Wiseman.

Prune the *luxuriant*, the uncouth refine,
 But show no mercy to an empty line.

Pope.

What a *luxurious* man in poverty would want for horses and footmen, a good-natured man wants for his friend or the poor.

Id.

While through the parting robe the alternate breast

In full *luxuriance* rose.

Thomson's Summer.

You cannot spend money in *luxury* without doing good to the poor. Nay, you do more good to them by spending it in *luxury*—you make them exert in- dustry, whereas, by giving it, you keep them idle.

Johnson.

The soft *luxuriance* of his fancy was already shooting, and all the gay varieties of diction were ready at his hand to colour and embellish it.

Id.

The time, unheeded, sped away,
 While love's *luxurious* pulse beat high,

Beneath thy silver-gleaming ray,
 To mark the mutual-kindling eye.

Burns

Althæa with the purple eye; the broom,
 Yellow and bright, as bullion unalloyed,
 Her blossoms; and *luxuriant* above all
 The jasmine, throwing wide her elegant sweets.

Cowper.

Nor is the '*luxury* of woe,' that we read of in poetry, a mere figure of speech; but a real sensation, wherewith every person of humanity is acquainted by frequent experience.

Beattie.

Nor taint of hoof, nor print of foot,
 Lay in the wild *luxuriant* soil;

No sign of travail—none of toil;
 The very air was mute.

Byron.

LUXEMBOURG (Francis Henry de Mont- morenci), duke of, and marshal of France, a renowned general in the service of Louis XIV. was born in 1628. He was the prince of Condé at the battle of Rocroy, in 1643; and in 1668 distinguished himself at the conquest of Franche Compté. In 1672 he commanded in chief the French army in Holland; when he defeated the enemy near Woerden and Bodegrave, and was universally admired for the noble retreat he made in 1673. He became marshal of France in 1675; gained the battle of Fleurus in 1690, that of Steenkirk in 1692, and that of Nerwind in 1693. His uniform success, when contending with king William III., rendered him an object of jealousy to that prince, and in the bitterness of his heart he one day called him 'a little hump back.' This being reported to the marshal he coolly said, 'And how can he know any thing of my back, I am sure he never saw it?' He died at Versailles in 1695.

LUXEMBURG, a considerable province of the south-east part of the Netherlands, enclosed by the Prussian states on the Rhine, a part of the French frontier, and the Belgic provinces of Namur and Liege. It has a territorial extent of 2400 square miles; and contains 226,000 inhabitants, composed of Germans, French, and Walloons, the major part professing the Catholic religion. The face of the country is mountainous and woody, being traversed by several branches of the Ardennes. It is watered by the Moselle, the Sure, the Semoys, the Else, and the Our. Its climate is cold; and corn is not raised sufficient for the consumption; but potatoes and flax are raised in large quantities, and wine on the borders of the Moselle. Cattle forms an important object of industry; but greater sources of traffic are found in its forests, which occupy 466,000 acres. The only mineral product is iron. The few manufactures are of woollen, leather, and iron; and its exports are to a small extent in wood, of wool, cattle, tallow, and leather. By the congress of Vienna Luxembourg was erected into a grand duchy, and ceded, as a compensation for territory, to the king of the Netherlands, who takes the title of grand duke. It is divided into three districts, viz. Luxembourg, 87,000 inhabitants; Dietkirch, 47,000; and Neufchateau 92,000.

LUXEMBURG, the capital of the 'grand duchy of this name, is situated on the river Alsetz, or Elsetz, not far from the French frontier. It is reckoned one of the strongest places in Europe, and is divided into the Upper and Lower Town. The former is built in the form of a heptagon, and stands chiefly on a steep rock, out of which the fortifications are excavated. The latter is situated in a deep valley, separated from the Upper Town by the river. The chief public building is the governor's castle; but both the town and the environs are of interest to the antiquary, from the various Roman antiquities. The manufactures are woollen cloth, stockings, and fine earthenware, and hardware.

Luxembourg is said to have had originally a castle, built by its early inhabitants, and enlarged by the Romans. The town was gradually formed under its protection. In 1684 it fell into the hands of the French, who enlarged its fortifications, but restored it to Germany at the peace of Ryswick. In the summer of 1794 it was besieged by the armies of France, and capitulated on the 17th of June following. It was finally lost by France in 1814. The population is about 10,000: 130 miles south-east of Brussels, and 220 south-east by south of the Hague.

LUXEMBURG, FRENCH, a ci-devant province of France, comprehending part of the ancient duchy, ceded to France in 1659, by the peace of the Pyrenees, and including the districts and towns of Thionville, Montmedy, Marville, Cheyancy, Carignan, and Damvilliers. It now forms the department of the Moselle.

LUXURIANS FLOS, a luxuriant or double flower, a flower some of whose parts are increased in number, to the diminution or entire exclusion of others. The parts that are augmented or multiplied, in luxuriant flowers, are the flower-cup and petals; the parts that are diminished,

or entirely excluded, are the stamina or chives. See BOTANY. Many natural orders of plants do not in any circumstances produce luxuriant flowers. Of this kind are the masqued flowers of Tournefort, excepting calf's-snout; the rough-leaved, umbelliferous, starry plants, and such as flower at the joints, of Ray; some umbelliferous flowers, however, are prolific. The pea bloom, or butterfly-shaped flowers, are rarely rendered double; some instances, however, of luxuriance, are observed in a species of lady's-finger, coronilla and broom. All luxuriant flowers are vegetable monsters. Such as are perfectly full cannot be propagated by seeds; because these, for want of impregnation, can never ripen. Full flowers, therefore, are denominated by Linnaeus *eunuchs*. The highest degree of luxuriance is very common in carnation, lychnis, anemone, stock, Indian cress, rose, marsh marigold, ranunculus, violet, peony, and narcissus. Flowers which do not exclude all the stamina perfect their seeds. Of this kind are poppy, fennel-flower, campanula, and some others. Some flowers, as those of the water-lily, fig-marigold, and cactus, have many rows or series of petals, without the number of stamina being in the least diminished. Such flowers are by no means to be reckoned luxuriant.

LUXURY may be defined an extravagant indulgence in diet, dress, and equipage. It among the Romans prevailed to such a degree, that several laws were made to limit it. The extravagance of the table began about the time of the battle of Actium, and continued in great excess till the reign of Galba. Peacocks, cranes of Malta, nightingales, venison, wild and tame fowl, were the principal delicacies. A profusion of provisions was the reigning taste. Whole wild boars were often served up, and filled with various small animals, and birds of different kinds: this dish they called the Trojan horse, in allusion to the wooden horse filled with soldiers. Fowls and game of all sorts were served up in whole pyramids, piled up in dishes as broad as moderate tables. Lucullus had a particular name for each apartment; and, in whatever room he ordered his servants to prepare the entertainment, they knew by the direction the expense to which they were to go. When he supped in the Apollo, the expense was fixed at 50,000 drachmæ, that is £1250. M. Antony provided eight boats for twelve guests. Vitellius had a large silver platter, said to have cost 1,000,000 of sesterces, called Minerva's buckler. In this he blended together the livers of gilt-heads, the brains of pheasants and peacocks, the tongues of phenicopters, and the milts of lampreys. Caligula served up to his guests pearls of great value dissolved in vinegar; the same was done also by Clodius, the son of Æsop the tragedian. Apicius laid aside 90,000,000 of sesterces, besides a mighty revenue, for no other purpose but to be sacrificed to luxury. The Roman laws to restrain luxury were Lex Orchia, Fannia, Didia, Licinia, Cornelia, and many others: but these were ineffectual; for, as riches increased among them, so did sensuality.

LUYA AND CHILLAOS, a province of Peru

bounded north and north-west by the province of Jaen, the river Amazons running between them, east by the mountains, and south-east by Caxamarca. It is eighteen leagues long, and about eight broad, containing 3500 inhabitants. The capital is of the same name, in long. 77° 41' W., lat. 5° 33' S.

LYCÆUM, *Λυκæον*, in antiquity, a celebrated school or academy at Athens, where Aristotle explained his philosophy. The place was composed of porticos, and trees planted in the quincunx form, where the philosophers disputed walking. Hence 'philosophy of the Lycæum' is used to signify the philosophy of Aristotle, or the Peripatetic philosophy. Suidas observes that the Lycæum took its name from its having been originally a temple of Apollo Lycæus; or rather a portico or gallery built by Lycæus the son of Apollo: but others mention it to have been built by Pisistratus or Pericles.

LYCÆUS, in ancient geography, a mountain of Arcadia, sacred to Jupiter; whence Jupiter Lycæus (Pliny): sacred also to Pan (Virgil): and hence Lycæa, the rites performed to Pan on this mountain; which, Evander carrying with him to Latium, were called Lupercalia (Virgil).

LYCANTHROPY, *n. s.* Fr. *lycanthropie*; Gr. *Λυκος*, the wolf, and *άνθρωπος*. A kind of madness in which men have the qualities of wild beasts.

He sees like a man in his sleep, and grows as much the wiser as the man that dreamt of a *lycanthropy*, and was for ever after wary not to come near a river.

Taylor.

LYCAON I., in fabulous history, the first king of Arcadia, son of Pelasgus and Melibœa. He built a town called Lycosura, on the top of Mount Lycæus, in honor of Jupiter. He had many wives, by whom he had fifty sons and a daughter called Callisto. He was succeeded by Nyctimus, his eldest son. He lived about A. A. C. 1820.

LYCAON II., king of Arcadia, noted for his cruelties. He was changed into a wolf by Jupiter, because he offered human victims on the altar of Pan. Some attribute this metamorphosis to another cause. The sins of mankind, as they relate, were become so enormous, that Jupiter visited the earth to punish wickedness and impiety. He came to Arcadia, where he was announced as a god, and the people began to pay proper adoration to his divinity. Lycaon, however, who used to sacrifice all strangers to his wanton cruelty, laughed at the pious prayers of his subjects; and, to try the divinity of the god, he served up human flesh on his table. This impiety so irritated Jupiter that he immediately destroyed the house of Lycaon, and changed him into a wolf.

LYCAONIA, in ancient geography, a small country of the Hither Asia, bounded by Pamphylia on the south, Cappadocia on the north, Pisidia and Phrygia on the west, and Armenia Minor on the east. This country, though situated very near mount Taurus, and part of it on it, yet the Romans reckoned it in Asia intra Taurum.

LYCHNIS, in botany, the campion, bachelor's-button, catch-fly, &c.; a genus of the pen-

tagynia order, and pentandria class of plants; natural order twenty-second, caryophyllæ: cal. monophyllous, oblong, and smooth; there are five unguiculated petals; with the segments of the limb almost bifid: caps. quinquelocular.

1. *L. Chalcedonica*, the Chalcedonian scarlet lychnis, has a fibrated perennial root; upright, straight, hairy, annual stalks, rising three or four feet high; garnished with long, spear-pointed, close-sitting leaves, by pairs opposite; and the stalk crowned by a large, compact, flat bunch of beautiful scarlet or flame-colored flowers, appearing in June or July. Of this there are varieties, with single scarlet flowers, with large double scarlet flowers, of great beauty and elegance, with pale red flowers, and with white flowers. Of these varieties, the double scarlet lychnis is superior to all for size and elegance; the flowers being large, very double, and connected into a very large bunch, exhibit a charming appearance; the single scarlet kind is also very pretty; and the others effect an agreeable variety with the scarlet kinds.

2. *L. diœcia*, the diœcious lychnis, commonly called bachelor's-button, has fibrated perennial roots; upright stalks, branching very diffuse and irregularly, two or three feet high; having oval, acute-pointed, rough leaves, by pairs opposite; and all the branches terminated by clusters of diœcious flowers of different colors and properties in the varieties: flowering in April and May. The varieties are the common single red-flowered bachelor's button, double red, double white, and single white flowered. The double varieties are exceedingly ornamental; the flowers large, very thick, and continuing long in blow; the single red sort grows wild by ditch sides and other moist places in many parts of England; from which the doubles were accidentally obtained by cultures in gardens. The flowers are often diœcious, i. e. male and female in distinct plants.

3. *L. flos cuculi*, the cuckoo-flower lychnis, has fibry perennial roots; upright, branchless, channelled stalks, nearly two feet high; garnished with long, narrow, spear-shaped leaves, in pairs opposite; and terminated by branchy foot-stalks, sustaining many purple, deeply quadrid flowers: appearing in May. The flowers having each petal deeply quadrid in a torn or ragged like manner, the plant obtained the cant name of Ragged Robin. There are varieties with single and double flowers. The double sort is a large, very multiple, fair flower; it is an improved variety of the single, which grows wild in most of our moist meadows, and is rarely cultivated; but the double, being ornamental, merits culture in every garden.

4. *L. viscaria*, the viscous German lychnis, commonly called catch-fly, has fibry perennial roots; crowned by a tuft of long grassy leaves close to the ground; many erect, straight, single stalks, rising a foot and a half or two feet high, exuding from their upper part a viscous or clammy matter; garnished with long narrow leaves, by pairs opposite; and terminated by many reddish-purple flowers, in clusters one above another, forming a sort of long loose spike; all the flowers with entire petals; flowering in May. There

are varieties with single red flowers, with double red flowers, and with white flowers. The double variety is considerably the most eligible for general culture, and is propagated in plenty by parting the roots. All the varieties of this species emitting a glutinous liquid matter from their stalks, flies happening to light thereon sometimes stick and entangle themselves, whence the name catch-fly. All the four species and respective varieties are very hardy; all fibrous-rooted; the roots perennial; but are annual in stalks, which rise in spring, flower in summer, succeeded in the singles by plenty of seed in autumn, by which all the single varieties may be raised in abundance, but the doubles only by dividing the roots, and some by cuttings of the flower-stalks.

LYCIA, a country of Asia Minor, bounded by the Mediterranean on the south, Caria on the west, Pamphylia on the east, and Phrygia on the north. It was anciently called Milyas, and Tremile, from the Milyæ, or Solymi, a people of Crete, who came to settle there. It was named Lycia from Lycus the son of Pandion, who established himself there. The inhabitants were greatly commended by the ancients for their sobriety and justice. They were conquered by Cræsus king of Lydia, and afterwards by Cyrus. Though they were subject to the power of Persia, yet they were governed by their own kings, and only paid a yearly tribute to the Persian monarchs. They became part of the Macedonian empire, when Alexander came into the east, and afterwards were ceded to the house of the Seleucidæ. The country was reduced into a Roman province by Claudius.

LYCIUM, in botany, a genus of the monogynia order, and pentandria class of plants; natural order twenty-eighth, *luridæ*: cor. tubular, having its throat closed up with the beard of the filaments: berry bilocular. There are eleven species, natives of various countries.

LYCODONTES, in natural history, the petri-fied teeth of the *lupus piscis*, or wolf-fish, frequently found fossile. They are of different shapes; but the most common kind rise in a semiorbicular form, and are hollow within, somewhat resembling an acorn cup; this hollow is found sometimes empty, and sometimes filled with the stratum in which it is immersed. Many of them have an outer circle, of a different color from the rest.

LYCOMEDES, in fabulous history, a king of Scyros, an island in the Ægean Sea. He was son of Apollo and Parthenope. He was secretly entrusted with the care of young Achilles, whom his mother Thetis had disguised in women's clothes, to remove him from the Trojan war, where she knew he must unavoidably perish. He is infamous for his treachery to Theseus, who had implored his protection, when driven from his throne by the usurper Mnesteus. Lycomedes, either envious of the fame of his illustrious guest, or bribed by Mnesteus, led Theseus to an elevated place, on pretence to show him the extent of his dominions, and perfidiously threw him down a precipice, where he was killed.

LYCOPERDON, in botany, a genus of the

natural order of fungi, and the cryptogamia class of plants. The fungus is roundish, and full of farinaceous seeds. There are several species; the following are the most remarkable.

1. *L. bovista*, the common puff-ball, is frequent in meadows and pastures in the autumn. It varies exceedingly in size, figure, superficies, and color. In general, it consists of a sack or bag, having a root at its base, and the bag composed of three membranes, an epidermis, a tough white skin; and an interior coat, which adheres closely to the central pith. The pith in the young plants is of a yellowish color, at first firm and solid, but soon changes into a cellular spongy substance, full of a dark dull-green powder, which discharges itself through an aperture at the top of the fungus, which aperture is formed of lacerated segments, in some varieties reflexed. The powder is believed to be the seeds, which through a microscope appear of a spherical form, and to be annexed to elastic hairs. Among the numerous varieties of this fungus, the glabrum is most remarkable. It is a smooth sessile kind, of a nearly spherical form, puckered or contracted at the root. This sometimes grows to an enormous size. It has been found in England as big as a man's head; and at Carrara, near Padua in Italy, specimens have been gathered, weighing twenty-five pounds, and measuring two yards in circumference; but its more ordinary size is that of a walnut or an apple. The varieties of this species have no limits, being frequently found to run into one another; the scaly, warty, and echinated coats turning smooth as the plants grow old, and the neck of the fungus having no determinate length. The natural color of the puff-ball is either white, gray, or ash-colored; but sometimes yellowish, tawny, and brownish. The internal spongy part of it, applied to wounds, is esteemed good to stop bleedings. Pressed and dried in an oven, the puff-ball becomes a kind of tinder, the smoke of which is said to intoxicate bees. Marsigli says the Italians fry the great variety, and indeed any of the others when young, and eat them with salt and oil.

2. *L. tuber*, truffles, or subterraneous puff-balls, a native of woods both in Scotland and England. It grows gradually in clusters three or four inches under ground, without any visible root. The figure of it is nearly spherical, the size that of a potato; the exterior coat at first white, afterwards black, and studded with pyramidal or polyhedrous tubercles; the internal substance solid and callous, of a dirty white or pale brown color, grained like a nutmeg with serpentine lines; in which, according to Micheli, are imbedded minute oval capsules, containing each from two to four round warted seeds. The truffles of Great Britain seldom exceed three or four ounces in weight; but in Italy, and some other parts of the continent, they are said to have been found of the enormous weight of from eight to fourteen pounds. They are used at table, either fresh and roasted like potatoes, or dried and sliced into ragouts. They have a volatile and somewhat urinous smell; and are reputed to be aphrodisiacal. Dogs are with much pains taught to hunt for them by the

seent, and to scratch up the ground under which they lie.

LYCOPERSICON. See **SOLANUM**.

LYCOPHRON, a famous Greek poet and grammarian, born at Colchis in Eubœa, who flourished about A. A. C. 304, and, according to Ovid, was killed by an arrow, A. A. C. 250. He wrote twenty tragedies; but all his works are lost, except a poem entitled *Cassandra*, which contains a long train of predictions, which he supposes to have been made by *Cassandra*, Priam's daughter. This poem is extremely obscure. The best edition of it is that of Dr. Potter, printed at Oxford in 1697, folio.

LYCOPodium, club moss, a genus of the natural order of musci, and cryptogamia class of plants. The antheræ are bivalved and sessile; there are no calyptra. There are twenty-four species; the following are the most remarkable:—

1. *L. clavatum*, the common club moss, abounds in dry and mountainous places, and fir forests. The stalk is prostrate, branched, and creeping, from a foot to two or three yards long; the radicles woody. The leaves are numerous, narrow, lanceolated, acute, often incurved at the extremity, terminated with a long white hair, and every where surround the stalk. The peduncles are erect, firm, and naked (except being thinly set with lanceolate scales), and arise from the ends of the branches. They are generally two or three inches long, and terminated with two cylindrical yellowish spikes, imbricated with oval acute scales, finely lacerated on the edges, and ending with a hair. In the ala or bosom of the scale is a kidney-shaped capsule, which bursts with elasticity when ripe, and throws out a light yellow powder, which, blown into the flame of a candle, flashes with a small explosion. The Swedes make mats of this moss to rub their shoes upon. In Russia and some other countries, the powder of the capsules is used in medicine to heal galls in children, chops in the skin, and other sores. It is also used to powder over official pills, and to make artificial lightning at theatres. The Poles make a decoction of the plant, and, dipping a linen cloth into it, apply it to the heads of persons afflicted with the disease called the *plica polonica*, which is said to be cured by this fomentation.

2. *L. selago*, fir club moss, is common in the Highland mountains of Scotland, and in the Hebrides. The stalk at the base is single and reclining; but a little higher is divided into upright dichotomous branches, from two to six inches high, surrounded with eight longitudinal oblique series of lanceolate, smooth, rigid, imbricated leaves. Near the summits of the branches, in the ala of the leaves, are placed single kidney-shaped capsules, consisting of two valves, which open horizontally like the shells of an oyster, and cast out a fine yellow powder. These capsules Linnæus supposes to be antheræ, or male parts of fructification. In the ala also of many of the leaves, near the tops of the branches, are often found what he calls female flowers, but which Haller esteems to be only gems or buds of a future plant. They consist, first, of four stiff, lanceolate, incurved, mi-

nute leaves, one of the outermost longer and larger than the rest. These are supposed to correspond to the calyx in regular flowers. Again, at the bottom of this calyx are five small pellucid substances, resembling leaves, visible only by a microscope, which are supposed analogous to pistils. These, in time, grow up into three large broad leaves, two of the five united together like the hoof of an ox; with a third narrower one annexed at the base, and two other minute ones opposite to the other three. These five leaves are joined at the base; and in autumn, falling from the calyx, vegetate, and produce a new plant. See a dissertation *De Seminibus Muscorum*, Amœnit., *Academ. II.* p., 261. In the island of Raasay, near Sky, in Ross-shire, and some other places, the inhabitants make use of this plant instead of alum, to fix the colors in dyeing. The Highlanders also sometimes take an infusion of it as an emetic and cathartic: but it operates violently; and, unless taken in a small dose, brings on giddiness and convulsions. Linnæus informs us, that the Swedes use a decoction of it to destroy lice on swine and other animals.

LYCOPSIS, in botany, a genus of the monogynia order, and pentandria class of plants: natural order forty-first, *asperifoliæ*: cor. has an incurvated tube. Species nine; chiefly natives of the Levant and of Palestine.

LYCOPUS, in botany, a genus of the monogynia order, and diandria class of plants: natural order forty-second, *verticillatæ*: cor. quadrifid, with one of the segments emarginated; the stamina standing asunder, with four retuse seeds.

LYCURGUS, the celebrated legislator of the Spartans, was the son of Eunomes king of Sparta. He travelled to Greece, to the isle of Crete, to Egypt, and even to India, to converse with the sages and learned men of those countries, and to learn their manners, their customs, and their laws. After the death of his brother Polydectes, king of Sparta, his widow offered the crown to Lycurgus, promising that she would make herself miscarry of the child of which she was pregnant, provided he would marry her; but Lycurgus nobly refused her offers, and afterwards, contenting himself with being tutor to his nephew Charillus, restored him the government when he came of age; but, notwithstanding this regular and generous conduct, he was accused of a design to usurp the crown. This calumny obliged him to retire to the island of Crete, where he studied the laws and customs of nations. On his return to Lacedæmon he reformed the government; and, to prevent the disorders occasioned by luxury and the love of riches, he prohibited the use of gold and silver; placed all the citizens in a state of equality; and introduced the strictest temperance, the most exact discipline, and those admirable laws which (a few excepted) have been celebrated by all historians. It is said that, to engage the Lacedæmonians to observe them inviolably, he made them swear not to change any part of them till his return; and that he afterwards went to the island of Crete, where he killed himself, after ordering his ashes to be thrown into the sea, lest, if his body should be carried to Sparta, the Lacedæmonians should

think themselves absolved from their oath. He flourished about A. A. C. 870.

LYCUS, in ancient geography, a river of Phrygia, which disappears near Colossæ, and rises again about four stadia from it, after which it falls into the Mæander.

LYDDA, in ancient geography, a town and district of Judæa, fourteen miles north-east of Joppa and thirty-two west of Jerusalem, originally belonging to the Ephraimites, but afterwards to the Benjamites. In the time of the Maccabees it was taken from Samaria. It was famous for a college of the Jews, which produced many celebrated rabbies.

LYDGATE (John), called the monk of Bury; not, as Cibber conjectures, because he was a native of that place, for he was born about 1380, in the village of Lydgate, but because he was a monk of the Benedictine convent at St. Edmund's-Bury. After studying some time in the English universities, he travelled to France and Italy; and, having acquired a competent knowledge of the languages of those countries, he returned to London, where he opened a school, in which he instructed the sons of the nobility in polite literature. At what time he retired to the convent of St. Edmund's-Bury does not appear; but he was there in 1415, and was living in 1446, aged about sixty-six; but when he died is not known. Pits says, he was 'an elegant poet, a persuasive rhetorician, an expert mathematician, an acute philosopher, and a tolerable divine.' He was a voluminous writer; and his language is less obsolete, and his versification more harmonious, than that of Chaucer, who wrote about fifty years before him. He wrote, 1. *History of the Theban War*, printed at the end of Chaucer's works, 1561, 1602, 1687. 2. *Poemation of good Counsel*, *Ibid.* 3. *The Life of Hector*, London 1594, folio, printed by Gross, dedicated to Henry V. 4. *Life of the Blessed Virgin*, printed by Caxton. 5. *The Proverbs of Lydgate upon the fall of Princes*, printed by Wink. Word., London, 4to. 6. *Dispute of the Horse, the Sheep, and the Goose*, Caxton, 4to. 7. *The Temple of Brass*, among the works of Chaucer. 8. *London Lick-penny*: see Stowe's History, &c. Besides an incredible number of other poems and translations preserved in various libraries, and of which the reader will find a catalogue in bishop Tanner's works.

LYDIA, in ancient geography, a celebrated kingdom of Asia Minor. All the ancient writers tell us, that Lydia was first called Mæonia or Meonia, from Meon king of Phrygia and Lydia; and that it was known under no other denomination till the reign of Atys, when it began to be called Lydia, from his son Lydus. Bochart finding in his learned collection of Phœnician words the verb *luz*, signifying to wind, and observing that Lydia is watered by the Mæander, so famous for its winding, concludes that it was thence named Lydia or Ludia. The ancient name of Mæonia, he takes to be a Greek translation of the Phœnician word *Lud*; wherein he agrees in some measure with Stephanus, who derives the name of Mæonia from Mæon, the ancient name of the Mæander. Some take the word Mæonia

to be a translation of a Hebrew word signifying metal, because that country, say they, was in former times enriched with mines. Though Lydia and Mæonia are by most authors indifferently used for the same country, yet they are sometimes distinguished; that part where mount Tmolus stood, watered by the Pactolus, being properly called Mæonia; and the other, lying on the coast, Lydia. This distinction is used by Homer, Callimachus, Dionysius, and other ancient writers. In after ages, when the Ionians, who had planted a colony on the coast of the Ægean Sea, began to make some figure, that part was called Ionia, and the name of Lydia given to the ancient Mæonia. Lydia, according to Pliny, Ptolemy, and other ancient geographers, was bounded by Mysia Major on the north, by Caria on the south, by Phrygia Major on the east, and Ionia on the west, lying between 30° and 39° lat. N. The kingdom of Lydia was not confined within these boundaries, but extended from Italy to the Ægean Sea. Pliny's description includes Æolia, lying between the Hermus and the Caicus.

Josephus, and after him all the ecclesiastical writers, derive the origin of the Lydians from Lud, Shem's fourth son, from the similitude of the names. Some will have the Lydians to be a mixed colony of Phrygians, Mysians, and Carians. Others finding some conformity in religious ceremonies between the Egyptians and Tuscans, who were a Lydian colony, conclude them to have been originally Egyptians. All we know, for certain, is, that the Lydians were a very ancient nation, as is manifest from their very fables; for Atys, Tantalus, Pelops, Niobe, and Arachne, are all said to have been the children of Lydus. And Zanthus, in his *Lydiaca*, quoted by Stephanus, informs us, that the ancient city of Ascalon, one of the five satrapies of the Philistines, mentioned in the books of Joshua and the Judges, was built by one Ascalus, a Lydian, whom Achæmus, king of Lydia, had appointed to command a body of troops which he sent into Syria. The Heraclidæ, or kings of Lydia, descended from Hercules, began to reign before the Trojan war; and had been preceded by a long series of sovereigns, sprung from Atys, and hence styled Atydæ: a strong proof of the antiquity of that kingdom. The Lydians began very early to be ruled by kings, whose government seems to have been despotic, and the crown hereditary. They had three distinct races of kings, viz. the Atydæ, the Heraclidæ, and the Mermnadæ. The Atydæ were so called from Atys, the son of Cotys, and grandson of Manes, the first Lydian king. But the history of this family is obscure and fabulous. They were succeeded by the Heraclidæ, or descendants of Hercules. For Hercules, being, by the direction of the oracle, sold as a slave to Omphale, queen of Lydia, and relict of king Tmolus, to expiate the murder of Iphitus, had, during his captivity, by one of her slaves, a son named Cleolaus, whose grandson Argon was the first of the Heraclidæ that ascended the throne of Lydia. Others say that Omphale herself, astonished at the valor of Hercules, fell in love with him, married him, and had two sons by him named Agelaus and La-

mon; the eldest of whom succeeded her, and gave rise to the new royal race. This race is said to have reigned 505 years, the son succeeding the father for twenty-two generations. They began to reign about the time of the Trojan war. The last of the family was Candaules, who was contemporary with Romulus, and who lost both his life and kingdom by his imprudence. For, according to Herodotus and Justin, he was so vain of his wife's beauty, that he showed her naked to Gyges, his favorite minister, which enraged the queen so much, that she conspired with, or rather ordered, Gyges to murder him; which he accordingly did, while Candaules was asleep, married the queen, and took possession of the kingdom, in which he was confirmed by the oracle at Delphi. Gyges showed his gratitude by sending many rich presents to the oracle, particularly six cups of gold, weighing thirty talents. He made war on Miletus and Smyrna, took Colophon, and subdued the whole country of Troas. In his reign, and by his permission, the city of Abydos was built by the Milesians. Plutarch, and other writers, relate his accession to the crown in a different manner, and tell us, without mentioning the queen, that Gyges rebelled against Candaules, and slew him in an engagement. In Gyges began the third race, called Mermnadæ; who were also Heraclidæ, being descended from the other son of Hercules by Omphale. Gyges reigned thirty-eight years, and was succeeded by his son Ardyes, who carried on the war against the Milesians, and possessed himself of Priene, in those days a strong city. In his reign the Cimmerians invaded and over-run all Asia Minor. Herodotus informs us, that they even took the metropolis of Lydia, but could never reduce the castle. Ardyes reigned forty-nine years, and was succeeded by his son Sadyattes, who reigned twelve years, and was engaged in war with the Milesians for the greater part of his reign. To him succeeded his son Alyattes II. who for five years continued the war against the Milesians, ravaging their country, and about harvest time carrying away all their corn yearly, in order to oblige them, for want of provisions, to surrender their city, which he could not reduce any other way, the Milesians being then masters of the sea. In the twelfth year of this war, the Lydians having set fire to the corn in the fields, the flames were carried by a violent wind to the temple of Minerva at Assessus, and burnt it down to the ground. Not long after, Alyattes, falling sick, sent to consult the oracle at Delphos; which refused to return any answer till the king should rebuild the temple of Minerva. Alyattes, therefore, sent ambassadors to Miletus, to conclude a truce with the Milesians till the temple should be rebuilt. On the arrival of the ambassadors, Thrasybulus, then king of Miletus, commanded all the corn in the city to be brought into the market-place, ordering the citizens to banquet in public, and revel as if the city were plentifully stored with provisions, that the ambassadors, seeing such plenty, and the people every where revelling, might acquaint their master with their affluence, and divert him from pursuing the war. His stratagem had the desired

effect; for Alyattes, receiving this account from his ambassadors, changed the truce into a lasting peace, and ever afterwards lived in friendship with Thrasybulus and the Milesians. He was succeeded, after a reign of fifty-seven years, by his son Cræsus, whose uninterrupted prosperity, in the first years of his reign, far eclipsed the glory of all his predecessors. He made war on the Ephesians, whose city he besieged and took, notwithstanding their consecrating it to Diana, and fastening the walls by a rope to her temple, which was seven stadia distant from the city. After this he attacked the Ionians and Æolians, obliging them, and all the other Greek states of Asia, to pay him a yearly tribute. Having met with such extraordinary success by land, he resolved to render his power equally conspicuous by sea; but was dissuaded from this enterprise by Bias of Priene, or, as others say, by Pittacus of Mytilene. He therefore determined peaceably to enjoy the laurels he had won, and began now to consider himself as the happiest of men. But his happiness was soon alloyed by the death of his favorite son, Atys, who was unfortunately killed at the chase of a wild boar. For this loss he continued disconsolate for two years, and in a state of inaction, till the conquests of Cyrus, and growing power of the Persians, again roused his martial spirit. He apprehended that the success which attended Cyrus, in all his undertakings, might at last prove dangerous to himself, and therefore resolved to put a stop, if possible, to his progress. In this resolution he was encouraged by the oracle of Apollo at Delphi; to whom he sacrificed 3000 oxen, and adorned his shrine with dedications equally valuable for the workmanship and for the materials; precious vessels of silver, ewers of iron, beautifully inlaid and enamelled; various ornaments of pure gold, particularly a gold lion, weighing ten talents; and a female figure three cubits, or nearly five feet high. In return for these magnificent presents the oracle, in ambiguous language, flattered Cræsus with obtaining an easy victory over his enemies, and with enjoying a long life and a prosperous reign; enjoining him to contract an alliance with the most powerful of the Grecian states; and assuring him, that, if he crossed the Halys, he would overthrow a great empire; which he concluded to be that of Persia. Elevated with these favorable predictions he formed an alliance with the Lacedæmonians, then the most powerful state in Greece; to whom he had formerly made a present of a large quantity of gold for a statue of Apollo, in return for which they now sent him a large brazen vessel capable of containing 300 amphoras (above twelve hogsheads) elegantly carved. Cræsus had formerly made an alliance with Amasis king of Egypt, and Labynitus, or Belshazzar, king of Babylon; and, having now obtained the friendship of the most warlike nation of Europe, the newly raised power of Cyrus and the Persians seemed incapable of resisting such a formidable confederacy. Elevated with these ideas, Cræsus waited not to attack the Persian dominions until he had collected the strength of his allies. The impetuosity of his temper precipitated him into measures no less ruinous than dar-

ing. Attended only by the arms of Lydia, and a band of mercenaries, he marched towards the Halys; and, having crossed that deep and broad stream, entered Cappadocia, the western frontier of Media. That unfortunate country soon experienced all the calamities of invasion. The Pterian plain, the most beautiful and the most fertile district of Cappadocia, was laid waste; the ports of the Euxine, as well as several inland cities were plundered; and the inhabitants were either put to the sword or dragged into captivity. Meanwhile, the approach of Cyrus afforded the Lydian king an opportunity of bringing the war to a speedy issue. Such was the rapidity of his movement, after being informed of the ravages of Cappadocia, that he arrived from the shores of the Caspian to those of the Euxine Sea before the army of Cræsus had provided necessaries for their journey. That prince, when apprised of the neighbourhood of the Persians, encamped on the Pterian plain; Cyrus likewise encamped at no great distance; and a general engagement was fought with equal fury and perseverance, and only terminated by the darkness of the night. The loss on both sides hindered a renewal of the battle. The numbers, as well as the courage of the Persians, much exceeded the expectation of Cræsus. As they discovered no intention to harass his retreat, he determined to move back towards Sardis, to spend the winter in his palace, and, after summoning his numerous allies to his standard, to take the field early in spring, with such increase of force as seemed sufficient to overpower the Persians. But this design was defeated by the vigilance of Cyrus, who waited until Cræsus had re-entered his capital, and had disbanded the foreign mercenaries, who composed the most numerous division of his army. Cyrus then put his Persians in motion, and such was his celerity, that he brought the first news of his own arrival in the plain of Sardis. Cræsus's firmness was not shaken by this unforeseen danger; though his mercenaries were disbanded, his own subjects served him from attachment, had been long accustomed to victory, and were animated with a high sense of national honor. The Lydians in that age fought on horseback, armed with long spears; the strength of the Persians consisted in infantry. They were so little accustomed to the use of horses, that camels were almost the only animals which they employed as beasts of burden. As the troops on both sides approached to join battle, the Lydian cavalry, terrified at the unusual appearance of the camels, mounted with men in arms, were thrown into disorder, and endeavoured to escape. Cræsus, who perceived the confusion, was ready to despair of his fortune, but the Lydians, abandoning their horses, prepared with uncommon bravery to attack the enemy on foot. Their courage deserved a better fate; but unaccustomed to this mode of fighting they were received and repelled by the Persian infantry, and obliged to take refuge in Sardis. The walls of that city bid defiance to the art of attack then practised by the most warlike nations. If the Persian army should invest it, the Lydians had provisions for several years; and they expected that in a few months, or even weeks, they should receive

such assistance from Egypt, Babylonia, and Sparta, as would oblige the Persians to raise the siege. The valor of the Spartans might have saved the sinking empire of Lydia; but, before their armament could sail, Cræsus was no longer a sovereign. Notwithstanding the strength of Sardis, that city was taken by storm on the 20th day of the siege; the walls having been scaled in a quarter, which, appearing altogether inaccessible, was too carelessly guarded. Hyreades a Mede accidentally observed a Lydian sentinel descend part of the rock to recover his helmet. Hyreades, being accustomed to clamber over the dangerous precipices of his native country, tried to pass this rock, and easily accomplished it. The bravest of the Persians followed his example, and were supported by greater numbers of their countrymen; the garrison of Sardis was surprised; the citadel stormed; and the rich capital of Lower Asia subjected to the rapacity of an indignant victor. Thus ended the ancient kingdom of Lydia, which continued subject to the Persians till they also were conquered by the Macedonians. For the fate of the Lydian monarch, see CRÆSUS.

LYDIAT (Thomas), a learned English divine, born in 1572, and educated at Oxford. About 1609 he became acquainted with Dr. Usher, afterwards archbishop of Armagh, who took him to Ireland. He was at college in Dublin two years, after which he returned to England; and, the rectory of Alkington becoming vacant, he was presented to it: but at length, being engaged for the debts of a near relation, which he was unable to pay, having before spent his patrimony in printing several books, he was sent to prison; and was confined at Oxford, in the king's bench, and elsewhere, till Sir William Boswell, Dr. Robert Pink, warden of New College, bishop Usher, and Dr. Laud, discharged the debt. In the civil wars he suffered much in his rectory of Alkington from the parliamentary party; was four times pillaged to the value of at least £70, and was forced for three months to borrow a shirt. He died in 1646. He wrote some pieces in English, and many works in Latin, on chronology and natural history.

LYDIUS LAPIS, in the natural history of the ancients, the touch-stone for trying gold and silver, called by some Heraclius lapis; both of which names were also applied by the ancients to the load-stone; and hence has arisen no small ambiguity in their works, as Pliny has observed. The true lapis Lydius, or touch-stone, was anciently found only in the river Tmolus; but was afterwards found in many other places, and is now very common in many of the German rivers. The ancients give us very remarkable and circumstantial accounts of the uses they made of it; and it is plain they were able to discern the alloys of gold by means of it with very great exactness. Several different stones are now used under this name, for this purpose. In Italy a green marble called verdello is most frequently used; and with us, very frequently small pieces of the basaltes. See BASALTES.

LYE or LIE. *Fr. lie*. A body impregnated with some extraneous qualities; generally applied to fluids.

Chamber *lie* breeds fleas like a loach.

Shakspeare.

Answerable whereunto, but beyond it, was the diet of Valentine, a rigorous votary, who, for ten years together, would eat nothing but bread dipt in water, wherein wormwood was steeped: and of other his fellow, who steeped his bread in *lye*, that he might eat ashes with the prophet. *Bp. Hall.*

All liquid things concocted by heat become yellow; as *lye*, wort, &c. *Peacham on Draining.*

He will know how to make use of the waste *lyes*, so as to decompose the salts which they contain, and convert them to good and serviceable alkali, fit for future operations. *Parkes's Chemical Catechism.*

LYE, }
LYING. } See LIE.

LYE (Edward), M. A., a learned antiquary, born at Totness in Devonshire, and educated at Oxford. He published, 1. An Anglo-Saxon and Gothic Dictionary, in 2 vols. folio, 1762; 2. A Grammar of these languages; and other pieces. He died in 1769.

LYGEUM, in botany, a genus of the monogynia order, and triandria class of plants, natural order fourth, gramina; spatha monophyllous; there is a pair of corollæ upon the same germen; the nut is bilocular.

LYGII, LIGII, LUGII, or LOGIONES, in ancient geography, a people of Germany, west of the Vistula, where it forms a bend like a crescent (Dio, Strabo, Zosimus). Their name Luggi is derived from their close confederacy. The Vistula was their boundary upon the north, east, and south, and Mount Asciurgius on the west. The whole of that country now lies in Poland, on this side the Vistula.

LYING TO, or LYING BY, the situation of a ship, when she is retarded in her course, by arranging the sails in such a manner as to counteract each other with nearly an equal effort, and render the ship almost immoveable, with respect to her progressive mot on or head way. A ship is usually brought to by the main and fore top sails, one of which is laid aback, whilst the other is full; so that the latter pushes the ship forward, whilst the former resists this impulse by forcing her astern. This is particularly practised in a general engagement, when the hostile fleets are drawn up in two lines of battle opposite each other. It is also used to wait for some other ship, either approaching or expected; or to avoid pursuing a dangerous course, especially in dark or foggy weather, &c.

LYME, or LYME REGIS, a sea-port, borough, and market town of Dorsetshire, near the sea, on the borders of Devonshire, in a cavity between two rocky hills which make it difficult of access. As it lies on the declivity of a hill, the houses make a good appearance; some of them are built of freestone, and covered with blue slate. The corporation consists of a mayor (who is justice of peace during his mayoralty and two years after), a recorder, fifteen burgesses, and a town clerk. This place had formerly a very flourishing trade to France, Spain, the Straits, Newfoundland, and the West Indies; during which the customs amounted in some years to £16,000. But it stands on such a high steep rock, that the merchants are obliged to load and unload their goods at a place a quarter of a mile off, called

the Cobb, originally built in the reign of Edward III., which costs a great sum to maintain, but forms an excellent harbour, the ships being sheltered by a high thick stone wall, raised in the main sea a good way from the shore, broad enough for carriages and warehouses. The materials of its rude pier consist of vast stones weighed out of the sea, arranged in such a manner as to break the violence of the tide, which, notwithstanding, has made great encroachments, the cliffs being composed of a kind of marl and blue clay, incorporated with lime. The point of the first, or main wall, is the entrance into the port, and the opposite wall breaks the violence of the sea from the entrance, and the vessels being defended from all winds ride as secure as in a wet dock. The cellars of the low part of the town, near the sea, are however often overflowed by the spring tides ten or twelve feet. There are guns planted for defence of the Cobb and the town. The custom house stands on pillars, and the corn market under it. There are an alms-house, and a Presbyterian and a Baptist meeting-house. The church stands at the east end of the town on a rising ground. The market is on Friday, and there are two fairs. In 774 the Saxon king Kinwulf gave land here to the church of Sherbon, for boiling of salt. At this place the duke of Monmouth landed in 1685. About fifty years ago above £2000 worth of gold and silver coins of Charles I. and II. were discovered by some laborers. It is twenty-eight miles east by south of Exeter, and 143 W. S. W. of London. It sends one member to parliament.

LYMINGTON, a sea-port, borough, and market town of Hampshire, about a mile from the channel, between the main land and the Isle of Wight; with a harbour for vessels of considerable burden. The tide flows nearly a mile above the town. There are two sets of baths, one at the bottom of the town, the other above half a mile from it; of late they have been made very convenient, and are much frequented during the season. The borough is a corporation by prescription, consisting of a titular mayor, aldermen, and burgesses without limitation. It has sent two members to parliament since the 27th of Elizabeth, the right of election being in the mayor and burgesses, &c. The number of voters is unlimited. It has a market on Saturday, and two fairs. It is eighteen miles south-west of Southampton, and eighty-eight of London.

LYMPHI, *n. s.* } Fr. *lymphe*; Latin
LYMPHATIC, *adj.* } *lymphe*. Water; trans-
LYMPHEDUCTS, *n. s.* } parent colorless liquor;
the anatomical terms are explained by the extracts

The glands,

All artful knots, of various hollow threads,
Which *lympheducts*, an artery, nerve, and vein,
Involved and close together wound, contain.

Blackmore.

When the chyle passeth through the mesentery, it is mixed with the *lymph*, the most spirituous and elaborated part of the blood. *Arbuthnot on Aliments.*

Upon the death of an animal, the spirits may sink into the veins, or *lymphatics*, and glandules.

Floyer.

The *lymphatics* are slender pellucid tubes, whose cavities are contracted at small and unequal distances: they are carried into the glands of the mesentery, receiving first a fine thin *lymph* from the *lymphatic* ducts, which dilutes the chylous fluid.

Cheyne.

Where now the vital energy, that moved,
While summer was, the pure and subtle *lymph*
Through the imperceptible meandering veins
Of leaf and flower? It sleeps; and the icy touch
Of unprolific winter has impressed
A cold stagnation on the intestine tide. *Cowper.*

LYMPIATI, a name given by the Romans to such as were seized with madness; supposed to be used for Nymphati, because the ancients imagined that every person who had the misfortune to see a nymph was instantly struck with phrenzy. *Lymphati* may indeed signify madmen, as derived from *lympa*, water, over which element the nymphs were thought to preside. But it appears most likely that distracted people were called *lymphati*, from the circumstance of madmen being affected with the hydrophobia or dread of water after the bite of a mad dog; for this peculiarity, in cases of canine madness, was not unknown to the Romans.

LYNCEUS, in fabulous history, the only one of the fifty sons of Egyptus who was saved from being murdered by the fifty daughters of Danaus. See **DANAIDES** and **DANAUS**.

LYNCEUS, the son of Aphaereus, one of the Argonauts. He was of great use, by enabling them to avoid the sand-banks and rocks in their way. The poets say, that he had so piercing a sight that it could not only penetrate the earth, and to the bottom of the sea, but even to hell. Some suppose that this fable is taken from Lynceus's skill in observing the stars, and discovering the mines of gold and silver concealed in the earth.

LYNCBURG, a town of Virginia, in Campbell county, 100 miles west of Richmond, and 160 south-west of Washington. These distances are expressed in right lines. The distance from Richmond by the road is 120, from Washington 206 miles. Long. 79° 22' W., lat. 37° 30' N. Population, in 1818, estimated at 5500. It is situated twenty miles below the great falls, where James River breaks through the Blue Ridge. It is one of the most flourishing and commercial towns in the state, and contains a court house, a gaol, two clerks' offices fire proof, a market house, two banks, a masonic hall, a Lancasterian school, a female academy, several other literary seminaries, a circulating library, two printing offices, which issue, one a weekly and the other a semi-weekly newspaper, and three houses of public worship, one for Presbyterians, one for Methodists, and one for Baptists. There is also in the vicinity a Friends' meeting-house. A large proportion of the houses are of brick, of two, three, and four stories. Here is a toll bridge across the river, and a free bridge is now building.

The town contains seven public warehouses, in which from 10,000 to 12,000 hogsheads of tobacco are annually inspected, four tobacco manufactories, five tobacco stemmaries, thirty-two stores for dry goods, thirty-one for groceries, seventeen taverns, eight commission houses, and numerous other establishments for trade and manufactures, also flour and cotton mills.

LYNCURIUM, a stone thought to be the same with the tourmalin. The name is derived from *λυξ*, *lynx*, and *ουρον*, urine.

LYNN, or **LYNN REGIS**, a large well-built seaport, borough, and market town of Norfolk, which sends two members to parliament. It was a borough by prescription in 1298. King John, on account of its adherence to him against the barons, made it a free borough with extensive privileges; and gave it a silver cup of seventy-three ounces, doubly gilt and enamelled, and a large silver sword, that is carried before the mayor; though, some say, this last is Henry VIII.'s sword, which he gave to the town when he became possessed of it by exchange with the bishop of Norwich; after which it was called *Lynn Regis* or *King's Lynn*, instead of *Bishop's Lynn*. Henry III. made it a mayor town for serving him against the barons. It has had fifteen royal charters; and is governed by a mayor, two stewards, recorder, twelve aldermen, and eighteen common council-men. It has two churches, besides St. Nicholas's chapel; a Presbyterian, and a Quakers' meeting-house, with a bridewell, several alms-houses and a free school. In September 1741 the spires of both its churches were blown down by a storm; and that of St. Margaret, which was 193 feet high, having beat down the church, it was rebuilt; towards which king George II. gave £1000, and Sir Robert Walpole £500. This church was formerly an abbey. The town-house called Trinity Hall, and the exchange, are noble fabrics. The exchange has a bell tower of freestone, and an octagonal spire over it, 170 feet from the ground. There is a library in it, and another at St. Margaret's. The Gray friars' steeple is a noted sea mark. The situation of this town, near the mouth of the Ouse, gives it a commercial communication with eight counties; by which Peterborough, Ely, Stamford, Bedford, Huntingdon, Northampton, Cambridge, St. Edmundsbury, the north part of Bucks, and the inland parts of Norfolk and Suffolk, are supplied with heavy goods. Of coals and wine, this is the greatest port for importation of any place on all the east coast of England. In return *Lynn* receives all the corn exported from these counties, and sends more of it abroad than any port except Hull. Its foreign trade is great, to Holland, Norway, the Baltic, Spain, and Portugal. The harbour is safe, but difficult to enter by reason of many flats and shoals in the passage: but good pilots are always ready. The town consists of about 3000 houses, and appears to have been anciently very strong from its ruins. St. Ann's platform at the north end has twelve great guns, and commands all the ships passing near the harbour, and towards the land there are a wall and a ditch. Four rivulets run through the town, and the Ouse is about as broad as the Thames at London Bridge. In the great market-place a statue was erected in 1686 of James II. In another market-place is a statue of William III., and a fine cross with a dome and gallery supported by sixteen pillars. The market-house is of freestone, supported by sixteen columns; and is seventy feet high, erected on four steps neatly adorned with statues, &c. On the first Monday of every month the mayor, aldermen,

preachers, &c., meet to endeavour to settle all quarrels amicably, and prevent law-suits. This was established in 1588, and is called the Feast of Reconciliation. The markets are on Tuesday and Saturday; and there are two fairs: one beginning February 14th lasts fourteen days, and is called Lynn mart; the other is a cheese fair October 6th. During the civil wars this town held out for Charles I., and sustained a siege by 18,000 men for above three weeks; but was obliged to surrender, and to pay 10s. a head for every inhabitant, and a month's pay to the soldiers, to save it from plunder. It abounds so much with provisions that Spelman says, 'Ceres and Bacchus seem to have established their magazines in it.' The king's quay, where the imported wines are chiefly landed, is a handsome square, with brick buildings, and a statue of king James I. in the centre. Persons pass hence over the famous washes into Lincolnshire; but accidents often occur to the boats. Besides the churches here are places of worship for dissenters. The Guildhall is an ancient stone building, containing apartments for business and amusements. The theatre is commodious, and the new mall is about 340 yards long, very neatly planted with a quick-set hedge on each side, having, at convenient distances, semi-circular recesses and benches. At the east end of the town is a mound, on which are some strong fortifications. Lynn Regis lies forty-four miles north-west of Cambridge, and ninety-six north of London.

LYNN, a post town of Essex county, Massachusetts, six miles south-west of Salem, and nine N. N. E. of Boston. Population 4087. It contains a bank, a large dyeing establishment, and five houses of public worship: two for Methodists, one for Congregationalists, one for Friends, and one for Baptists, and is famous for the manufacture of shoes. No less than 1,000,000 pair of ladies' shoes were made here in 1811. There is a mineral spring in this town, near which is a house for the accommodation of visitors. Saugus has been set off from this town, and incorporated since the last census. Lynn Beach, which connects the peninsula of Nahant to the main land, is regarded as a curiosity.

LYNX, *n. s.* } Lat. A spotted beast, re-

LYNCEAN, *adj.* } remarkable for speed and sharp sight: lyncean, like the lynx.

I beseech you, when you hear my name traduced, learn of mine accusers, whose lyncean eyes would seem to see further into me than my own, what singular offence I have committed.

Bishop Hall's Account of Himself.

He that has an idea of a beast with spots, has but a confused idea of a leopard, it not being thereby sufficiently distinguished from a lynx. *Locke.*

What modes of sight betwixt each wide extreme, The mole's dim curtain, and the linx's beam.

Pope.

LYON KING OF ARMS, FOR SCOTLAND, is the second king at arms for Great Britain. See HERALDRY.

LYONET (Peter), F. R. S. &c., an ingenious naturalist, born at Maastricht, and descended from a very ancient family of Lorrain. He had scarcely attained his seventh year before he displayed an uncommon strength and agility in all

bodily exercises; and he was no less diligent in the improvement of his mind. He studied chronology, Latin, Greek, and French, Hebrew, logic, and the Cartesian physics. He understood no less than nine languages. In the university of Leyden he studied the Newtonian philosophy, geometry, algebra, &c.; as well as divinity, in obedience to his father who was a clergyman. He also studied anatomy, music, and drawing; and, having attained the degree of candidate in divinity, he studied law with such success that he was promoted at the end of the first year. At the Hague he studied the art of decyphering; and became secretary of the cyphers, translator of the Latin and French languages, and patent master to their high mightinesses. Meanwhile he undertook an historical description of such insects as are found about the Hague; collected materials for several volumes; and enriched his work with a great number of plates, universally admired by all who had seen them. In 1742 was printed at the Hague a French translation of a German work, *The Theology of Insects*, by Mr. Lesser. Mr. Lyonet, having deferred the publication of his work, made some observations on that of Lesser, to which he added two beautiful plates, engraved from his designs, which made his merit universally known. The celebrated Reaumur had Lesser's translation reprinted at Paris, chiefly on account of Mr. Lyonet's observations; on which he bestowed the highest encomiums. Lyonet afterwards executed drawings of the fresh-water polypus for Mr. Trembly's beautiful work, 1744. The ingenious Wandelaar had engraved the first five plates; when Lyonet, who had never seen this operation, having experienced difficulties in getting the remaining eight finished in the superior style he wished, resolved to perform the task himself. He accordingly took a lesson of an hour from Mr. Wandelaar, engraved three or four small plates, and immediately began upon the work itself; which he performed in such a manner as procured the highest praise, both from Mr. Trembly and the celebrated Van Gool; who declared that the performance astonished the most experienced artists. In 1748 he was chosen F. R. S. of London. In 1749 he began his amazing collection of horns and shells, which, according to the universal testimony of all who visited it, was the most beautiful; and one of the most valuable in Europe. In 1753 he became member of the Dutch Society of Sciences at Haerlem; and in 1757, after the celebrated M. le Cat, the anatomist, had seen his incomparable *Traité Anatomique de la Chenelle qui ronge le Bois de Saule*, with the drawings belonging to it, he was elected member of the Royal Academy of Sciences at Rome. In 1760 he was made a member of the Royal Academy of Sciences of Berlin; in 1761 of the Imperial Academy of Naturalists; and, in 1762, of the Imperial Academy of Sciences at St. Petersburg. To enable such as might wish to follow him in his astonishing discoveries respecting the structure of this animal, he published, in the Transactions of the Dutch Society of Sciences at Haerlem, a description and a plate of the instrument and tools he had invented for dissection, and of his method of ascertaining the

degree of strength of his magnifying glasses. During the last fifteen or twenty years of his life he added to his valuable treasure of natural curiosities a most superb cabinet of paintings, consisting of more than 560 articles; among which are many of the works of the first Dutch masters. He also wrote some pieces of Dutch poetry. He died of an inflammation in his breast, at the Hague, in January 1789, aged eighty-three.

LYONNOIS, a district and ci-devant province in the south-east of France, situated on the west side of the Saone and Loire, and bounded by the Bressi, the Beaujolois, Forez, and Dauphiny, about thirty miles in length and seventeen in breadth. It is fertile in wine, corn, and fruit; and contains the towns of Lyons, Tarare, La Bresle, St. Chamont, Condrieu, and Ance. It now forms part of the departments of the Rhone and the Loire.

LYONS, the ancient Lugdunum, one of the finest, richest, and most considerable towns of France, is the chief place of the department of the Rhone (Lyonnois), having a royal court for the departments of the Ain, the Loire, and the Rhone; a tribunal and chamber of commerce; an exchange; a royal lottery; a royal academy of sciences, belles lettres, and arts; a university; a royal college; a school and museum of the fine arts; a veterinary college; an institution for the deaf and dumb; an agricultural society; a society for natural history and the fine arts; and a theological faculty. It is a post town and an archbishopric, and has a population of 147,000 souls. The arrondissement, of which it forms a part, contains 128 communes, and 262,960 inhabitants.

This city is beautifully situated, at the confluence of the Rhone and the Saone; on the north the mountains of Fourvière and St. Sebastian rise over it in the form of an amphitheatre: it is surrounded with delightfully picturesque scenery; on one side the eye reposes on hills covered with vines, gardens, and country seats; on the other it wanders over fruitful plains, adorned with meadows and corn fields; while in the distance are seen the snowy summits of the Alps, which like white clouds skirt the horizon. Divided by the Saone into two unequal parts, and partly built on hills and partly on a level surface, Lyons presents little appearance of regularity; the inner part of the city is composed of very lofty houses, and narrow, crooked, and steep streets. There are also some fine parts, particularly those on the banks of the Saone, and others which extend along the Rhone, as well as those in the neighbourhood of Bellecour Square and the Terreaux, which are magnificent. Next to Paris this is the first city in France, and one of the most commercial places in Europe. It has four fauxbourgs, 245 streets, fifty-six public squares, twenty-five quays, and seventeen wharfs. The suburbs are pleasant, and contain a great number of country houses and charming walks.

In the front of the place Bellecour is an immense prospect, including the course of the Rhone, the vast plains of Dauphiny, the mountains of Charreuse and Chamberry. There are numerous wooden bridges in this city, which strike the traveller with the boldness of their

construction: the most remarkable is that of Moraud, built over the Rhone, and leading from the squares of St. Clair to the walk and fauxbourg of Bratteaux.

Lyons was founded in the year of Rome 712, about forty years before the Christian era, by the consul Lucius Minutius Plancus, and peopled by some Roman citizens whom the natives of the country had driven from Vienne. It immediately became the metropolis of all Celtic Gaul, the principal quarters of the legions, the market for sixty commercial nations, and the point from which the four great roads, made by Agrippa, opened into Gaul. One of these led to the Pyrenees by the Cevennes mountains, Auvergne, and Aquitain; another to the Rhine; the third to the ocean by Beauvoisis and Picardy; and the fourth to the Mediterranean by Narbonese Gaul. The city was built at first on the declivity of the mountain which stretches on the right of the Saone: it was embellished by Claudius, but laid waste by the barbarians: reduced to ashes in a single night, by lightning, it was rebuilt in the reign of Nero on its present site. Among the ancient monuments are to be observed the ruins of an aqueduct and a theatre, a fish-pond in good preservation, several pieces of mosaic work, and two columns of immense size, which decorated the famous altar of Augustus. Two general councils were held here in the thirteenth and fourteenth centuries. In the reign of Francis I. the Genoese laid the foundation of those silk manufactures which have since reached so high a degree of prosperity. In 1793 it was besieged by an army of 60,000 men, by order of the national convention, and defended itself for two months with the most heroic courage; but it was at length obliged to capitulate, after having suffered the horrors of famine and a most tremendous bombardment. It was afterwards subject to all the miseries of a city taken by storm; its principal edifices were demolished, and its name changed into that of Ville Affranchie. It has now become more flourishing than ever.

Marcus Aurelius, Caracalla, and Claudius, were born here: as were also de Coustou and de Coisevox, celebrated sculptors; de Lamoignon, de Jussieu, the celebrated botanist; de Bergasse, Morellet, Philippon la Madelaine, Prud'homme, and Degerando, men of letters; de Patrin, the naturalist; de Rozier, and marshal Suchet.

The manufactures of this city consist of silks of all kinds, gold and silver stuffs, shawls, crapes, hats, printed linen, cotton tissues, embroidery, gilding, silk millinery, gold and silver lace, and painted papers. It also has considerable manufactories of liqueurs, mineral acids and chemicals, dye-houses, metal and type foundries, machines for drawing gold and silver wire, glass-houses, delf factories, plaster-mills, tanneries, and curriers' shops. The inhabitants carry on a traffic in all the above articles, as well as in all sorts of grain, wines, brandies, and such colonial produce as is not prohibited; they also deal in oils, chestnuts, soap, and salt. The Rhone, the Saone, and the Loire, present great facilities for the transport of goods. Among the public institutions may be reckoned its library, the finest in all the departments, containing

106,000 volumes, among which are more than 800 MSS. in different languages; its museum of pictures and antiquities; its fine botanical garden; its town hall, the handsomest in France; the gallery of the fine arts; its hospital built on the quay of the Rhone, with a grand front of the Ionic order, and a quadrangular dome rising over it, adorned with the emblems of medicine; the church of St. John, with its fine clock; the custom-house; the theatre; the archbishop's palace, &c.; besides the squares, the finest of which is that of Bellecour, with an equestrian statue of Louis XIV. This city is about 354 miles south-east from Paris, 123 south-west from Geneva, seventy-two west of Chambery, eighty-one north-west of Grenoble, and fifty-one south of Macon; in lat. 45° 45', long. 2° 29' E. of Paris.

LYONS (Israel), an eminent botanist and mathematician, the son of a learned Polish Jew, who was a jeweller, and published a Hebrew Grammar, and observations on Scripture History. Israel was born at Cambridge in 1739. In 1758 he published a Treatise on Fluxions: in 1763 *Fasciculus plantarum circa Cantabrigiam nascentium*. He read lectures at Oxford; and, in 1773, accompanied captain Phipps (afterwards lord Mulgrave) to the north pole, by order of the board of longitude, who rewarded several of his inventions. He had a salary of £100 a year for calculating the Nautical Almanac. He married, and died at London, in 1775.

LYRA (Nicholas de), so called from the place of his birth, Lyre, in Normandy. He was a converted Jew of the fourteenth century, whose wrong-headed zeal in defence of the communion he had embraced, as the Catholic writers assert, contributed not a little to the progress of the reformation. 'If this lyre had not played,' they say, 'Luther never would have danced.' Of his works, which consist principally of annotations on the Bible, there are two editions extant; that of Rome, 5 vols. folio, and that of Antwerp in 6 vols. De Lyra, on renouncing Judaism, assumed the tonsure; and died in 1340, at Paris, where he had for some time been a lecturer on theology.

LYRE, *n.s.* } *Fr. lyre; Lat. lyra. A*
LYRIC, n.s. & adj. } *harp; a musical instru-*
LYRICAL, adj. } *ment to which poetry is*
LYRIST, n.s. } *supposed to be sung;*
 lyric and lyrical, are those who compose or play for or to the lyre.

With other notes than to the Orphean lyre.

Milton.

All his trophies hung and acts enrolled

In copious legend, or sweet lyric song. *Id.*

Somewhat of the purity of English, somewhat of more equal thoughts, somewhat of sweetness in the numbers; in one word, somewhat of a finer turn, and more lyrical verse is yet wanting. *Dryden.*

The greatest conqueror in this nation, after the manner of the old Grecian *lyricks*, did not only compose the words of his divine odes, but set them to musick himself. *Addison.*

My softest verse, my darling lyre,

Upon Euphelia's toilet lay. *Prior.*

He never touched his lyre in such a truly chromatick manner as upon that occasion. *Arbuthnot.*

His tender theme the charming *lyrist* chose
 Minerva's anger, and the direful woes
 Which voyaging from Troy the victors bore.

Pope.

The lute neglected, and the *lyrick* muse,
 Love taught my tears in sadder notes to flow,
 And tuned my heart to elegies of woe. *Id.*

If Young be not a *lyrick* poet; he is at least a critick in that sort of poetry; and, if his *lyrick* poetry can be proved bad, it was first proved so by his own criticism. *Johnson.*

The author of *Davideis* is commended by Dryden for having written it in couplets, because he discovered that any staff was too *lyrical* for an heroic poem. *Id.*

No should an idiot, while at large he strays,
 Find the sweet *lyre* on which an artist plays,
 With rash and awkward force the chords he shakes,
 And grins with wonder at the jar he makes.

Cowper.

Fair Spring advancing calls her feathered choir,
 And tunes to softer notes her laughing *lyre*;
 Bids her gay hours on purple pinions move,
 And arms her Zephyrs with the shafts of Love.

Darwin.

In vain my *lyre* would lightly breathe!
 The smile that sorrow fain would wear;
 But mocks the woe that lurks beneath,
 Like roses o'er a sepulchre.

Byron.

LYRE. All ancient authors agree that the lyre was invented by Mercury; but they differ much respecting the number of strings with which it was furnished. Some assert it was only three; that the sounds of the two remote were acute, and that of the intermediate one a mean between them. Others say that the lyre had four strings; that the interval between the first and fourth was an octave, that the second was a fourth from the first, and the fourth the same distance from the third, and that from the second to the third was a tone. Others contend that the lyre of Mercury had seven strings. Nicomachus, a follower of Pythagoras, says, 'The lyre made of the shell was invented by Mercury; and the knowledge of it, as it was constructed by him of seven strings, was transmitted to Orpheus: Orpheus taught the use of it to Thamyris and Linus: the latter taught it to Hercules, who communicated it to Amphion the Theban, who built the seven gates of Thebes to the seven strings of the lyre.' He adds, 'that Orpheus was afterwards killed by the Thracian women; that they cast his lyre into the sea, which was afterwards thrown up at Antissa, a city of Lesbos; that certain fishers finding it, they brought it to Terpander, who carried it to Egypt, greatly improved; and, showing it to the Egyptian priests, assumed to himself the honor of its invention.' The difference among authors seems to have arisen from their confounding together the Egyptian and the Grecian Mercuries. The invention of the primitive lyre with three strings was due to the first Egyptian Hermes. The lyre attributed to the Grecian Mercury is described by almost all the poets to be an instrument of seven strings. See MERCURY. Vincent Galilei has collected the various opinions of the Greek writers, who have mentioned the invention of the chelys, or testudo; and Mr. Spence has done the same in a very circumstantial manner. The substance of the legend he quotes

is 'that Mercury, after stealing some bulls from Apollo, retired to a grotto, at the foot of a mountain in Arcadia; found a tortoise feeding at the entrance, killed and eat the flesh of it; and, as he was diverting himself with the shell, observed the noise it gave from its concave figure; on which he cut several thongs out of the hides he had stolen, fastened them as tight as he could to the shell, and thus invented a new kind of music with them.' The most ancient representations of this instrument agree very well with this account of its invention. The lyre was represented as made of one entire shell of a tortoise; that of Amphion in the celebrated group of the Dirce or Toro, in the Farnese palace at Rome, which is of Greek sculpture, and very high antiquity, is figured in this manner. There have, however, been many other claimants to the seven-stringed lyre. For, though Mercury invented this instrument, Homer says, he afterwards gave it to Apollo (who was the first that played upon it with method, and accompanied it with poetry) as a peace-offering for the oxen he had stolen from him. Diodorus informs us, that Apollo, repenting of the cruelty with which he had treated Marsyas (see MARSYAS), broke the strings of the lyre, and put a stop for a time to any further progress in the practice of that new instrument. 'The Muses,' adds he, 'afterwards added to this instrument the string called mese; Linus, that of lichanos; and Orpheus and Thamyras, those strings which are named hypate and parhypate. Many ancient authors tell us, that, before the time of Terpander, the Grecian lyre had only four strings. Suidas says, it remained in this state 856 years, from the time of Amphion, till Terpander added to it three new strings, which extended the musical scale to a heptachord, and supplied the player with two conjoint tetrachords. About 150 years after this, Pythagoras added an eighth string to the lyre, to complete the octave, which consisted of two disjoint tetrachords. Boethius tells us, that the system did not long remain in such narrow limits as a tetrachord. Choræbus, the son of Atyr, king of Lydia, added a fifth string; Hyagnis a sixth; Terpander a seventh; and Lycaon of Samos an eighth. But all these accounts are irreconcilable with Homer's hymn to Mercury, where the *chelys*, or *tæstudo*, the invention of which he ascribes to that god, is said to have had seven strings. There are many claimants among the musicians of ancient Greece to the strings that were afterwards added to these, by which the scale, in the time of Aristoxenus, was extended to two octaves. Athenæus speaks of the nine stringed instrument; and Ion of Chios, a tragic and lyric poet, who recited his pieces in the eighty-second Olympiad, 452 B. C., mentions, in some verses quoted by Euclid, the ten-stringed lyre; a proof that the third conjoint tetrachord was added to the scale in his time, which was about fifty years after Pythagoras constructed the octachord. The different claimants to the same musical discoveries only prove, that music was cultivated in different countries; and that the inhabitants of each improved their own instruments, some of which, happening to resemble those

of other parts of Greece, led historians to attribute the same invention to different persons. Thus the single flute was given to Minerva and to Marsyas; the syrinx or fistula to Pan and Cybele; and the lyre or cythera to Mercury, Apollo, Amphion, Linus, and Orpheus.

LYRIC POETRY, such as the ancients sung to the lyre or harp. It was originally employed in celebrating the praises of gods and heroes, and its characteristic was sweetness. It was much cultivated by the Greeks; and Horace was the first who attempted it in the Latin language. Anacreon, Alcæus, Stesichorus, Sappho, and Horace, were the most celebrated lyric poets of antiquity.

LYRŌDI, among the ancients, musicians who played on the lyre and sung at the same time. This appellation was also given to such as made it their employment to sing lyric poems composed by others.

LYSANDER, a famous Spartan general, who conquered the Athenians at Ægospotamos, and subjected their city to thirty tyrants. See ATHENS and SPARTA.

LYSANDRIA, a Samian festival, celebrated with games and sacrifices in honor of the Lacedæmonian general Lysander. It was anciently called herea; but this name the Samians abolished by a public decree.

LYSIARCH, an ancient magistrate, who superintended the sacred games, and presided in matters of religion in the province of Lycia. He was created in a council consisting of deputies from the twenty-three provincial cities. The lysiarchs were both heads of the council and pontiffs of the province.

LYSIAS, an ancient Grecian orator, born in Syracuse in the 80th Olympiad. At fifteen he went to Thurion, a colony of the Athenians; and, when grown up, assisted in the administration of the government many years. When about forty-seven years of age, he returned to Athens; whence, being afterwards banished by the thirty tyrants, he went to Megara. He taught oratory, and though he did not plead at the bar, he supplied others with speeches. 'Fuit Lysias in causis forensibus non versatus,' says Cicero, 'sed egregie subtilis scriptor atque elegans,' &c. Quintilian gives him a similar character. Plutarch and Photius relate, that 425 orations were formerly exhibited under the name of Lysias; of which only thirty-four are now extant. The best edition is by Dr. John Taylor at London, 1739, 4to.; Cambridge, 1740, 8vo. &c.

LYSIMACHIA, loosestrife, in botany, a genus of the monogynia order, and pentandria class of plants; natural order twentieth, rotacææ: *con. rotaceous*: CAPS. globular, beaked, and ten-valved. There are several species, but only four are commonly cultivated in gardens. These are hardy herbaceous perennials and biennials, rising with erect stalks, from eighteen inches to two or three feet high; garnished with narrow entire leaves; and terminated by spikes and clusters of monopetalous, rotated, five-parted, spreading flowers, of white and yellow colors. They are easily propagated by seeds, and thrive in any soil or situation.

LYSIPPUS, a celebrated Greek statuary, born

at Sicyone. He was first a locksmith, afterwards a painter; but at last applied himself entirely to sculpture; in which he acquired an immortal reputation, and made a number of statues that were the admiration of the people of Athens and Rome. His grand statue of the sun, represented in a car drawn by four horses, was worshipped at Rhodes. He made several statues of Alexander and his favorites, which were brought to Rome by Metellus, after he had reduced the Macedonian empire; and the statue of a man wiping and anointing himself after bathing, being particularly excellent, was placed by Agrippa before his baths in that city. He lived in the time of Alexander the Great, about 334 B.C.; and left three sons, all famous statuary.

LYSONS (Samuel), an eminent British topographer and antiquarian. He was born in 1763, in Gloucestershire; and, after finishing his early studies, became a student of the Middle Temple, and was called to the bar. In 1804 he succeeded Mr. Astle as keeper of the records in the tower, which office he held till his death in 1819. Mr. Lysons' publications relate principally to the Roman antiquities of Britain, including *Figures and Descriptions of Mosaic Pavements discovered at Horkstow in Lincolnshire, 1801, folio*; *Remains of two Temples, and other Roman Antiquities, discovered at Bath, 1802, folio*; *Roman Remains discovered at Woodchester in Gloucestershire, folio*. He also published a volume of miscellaneous antiquities of Gloucestershire; and, in conjunction with his brother, the Rev. Daniel Lysons, the earlier volumes of the *Magna Britannica*, many of the plates of which were etched by himself.

LYTHIRUM, purple loosestrife, in botany, a genus of the monogynia order, and decandria class of plants; natural order seventeenth, calycanthemæ: *CAL.* cleft into twelve parts; and there are six petals inserted into it: *CAPS.* bilocular and polyspermous. There are many species, of which the most remarkable are,

1. *L. Hispanum*, the Spanish loosestrife, with a hyssop leaf, grows naturally in Spain and Portugal. It has a perennial root. The stalks are slender, not more than nine or ten inches long, spreading out on every side. The lower part of the stalk is garnished with oblong oval leaves placed opposite. The flowers come out singly from the side of the stalks at each joint; they are larger than those of the common sort, and make a fine appearance in July, when they are in beauty. It is propagated by seeds brought from those countries where it is native.

2. *L. salicaria*, the common purple loosestrife, with oblong leaves, is a native of Britain, and grows naturally by the sides of ditches and rivers. It has a perennial root, from which come forth several upright angular stalks, rising from three to four feet high, garnished with oblong leaves, placed sometimes by pairs; but sometimes there are three leaves at each joint standing round the stalk. The flowers are purple, and produced in a long spike at the top of the stalk: making a fine appearance. This species is propagated by parting the roots in autumn, in a moist soil.

LYTTELTON (Edward), lord Lyttelton, keeper of the great seal in the reign of Charles

I., was eminent for his probity and moderation at the commencement of that monarch's disputes with his subjects. Without forfeiting his fidelity to the king, he preserved the esteem of the parliament till 1644, when he was made colonel or a regiment in the king's army at York. He died in 1645. Besides several speeches, which have been printed, he wrote reports in the common pleas and exchequer, printed in London in 1683, in folio; several arguments and discourses, &c.

LYTTELTON (George), lord, eldest son of Sir Thomas Lyttelton, bart., descended from the great judge of that name, was born in 1700, at seven months; and the midwife, supposing him to be dead, threw him carelessly into the cradle; where, had not some signs of life been observed by one of the attendants, he might never have recovered. He received the elements of his education at Eton, where he showed an early inclination to poetry. His pastorals, and some other light pieces, were originally written in that seminary; whence he was removed to the university of Oxford, where he sketched the plan of his *Persian Letters*, a work which afterwards procured him great reputation, not only from the elegance of their style, but from the excellent observations they contain on the manners of mankind. In 1728 he set out on the tour of Europe; and, on his arrival at Paris, became acquainted with M. Poyntz, then minister at the court of Versailles; who employed him in many political negotiations, which he executed with great judgment and fidelity. About this time he wrote his poetical epistles to Dr. Ayscough and Mr. Pope, which show singular taste and correctness. After continuing a considerable time at Paris with M. Poyntz, he proceeded to Lyons and Geneva; and thence to Turin, where he was honored with marks of friendship by his Sardinian majesty. He then visited Milan, Venice, Genoa, and Rome, where he applied himself to the study of the fine arts. He soon after returned to his native country, and was elected M.P. for Okehampton in Devonshire. In 1744 he was appointed one of the lords commissioners of the treasury, which gave him an opportunity of exerting his influence in rewarding merit and ability. He was the friend and patron of Henry Fielding, Thomson (author of the *Seasons*), Mr. Mallet, Dr. Young, Mr. Hammond, Mr. West, and Mr. Pope, and a correspondent of M. Voltaire. On the death of Thomson, who left his affairs in a very embarrassed condition, Mr. Lyttelton took that poet's sister under his protection. He revised the tragedy of *Coriolanus*, which that writer had not finished; and brought it out at the theatre-royal, Covent Garden, with a prologue of his own writing, in which he so pathetically lamented the loss of that delightful bard, that almost the whole audience burst into tears. His masterly Essay on the Conversion and Apostleship of St. Paul was written in 1747, at the desire of Gilbert West, esq. In 1754 he was made cofferer to his majesty, and a privy-councillor; previous to which he had married Elizabeth, daughter of field-marshal Sir Robert Rich, whose conduct however was so indiscreet, that they separated by mutual consent a few years after. After being appointed chancellor

and under-treasurer of the exchequer, he was, on the 19th of November, 1757, created a peer. His speeches on the Scotch and mutiny bills in 1747, on the Jew bill in 1753, and on the privilege of parliament in 1763, showed sound judgment, powerful eloquence, and inflexible integrity. His last works were Dialogues of the Dead, in which the morality of Cambray and the spirit of Fontenelle are happily united; and the History of Henry II., which he published in 1764. He was seized with an inflammation of the bowels, of which he died at Hagley 22d of July, 1773. A complete collection of his works has been since published by his nephew George Ayscough, esq.

LYTTLETON (the honorable Charles), LL. D., third son of Sir Thomas, was educated at Eton and Oxford, entered of the Inner Temple, and called to the bar; but afterwards took orders, and was made chaplain to king George II. in 1747; in 1718 dean of Exeter, and in 1762

bishop of Carlisle. He was many years president of the Society of Antiquaries, and contributed many valuable articles to the *Archæologia*. He died in 1762.

LYTTLETON (Thomas), lord, the son of lord Lyttleton, a young nobleman of promising talents, but dissipated manners. He was born in 1744, and died in 1779, aged thirty-five. His death was preceded by a very singular circumstance: he saw in a dream a young woman dressed in white, who told him that he would die within three days. On the third day he had a party of friends invited to spend the evening with him; to whom, about the hour predicted, he said, 'I believe I shall jockey the ghost;' but in a few minutes he became faint, and was carried to bed, where he soon breathed his last. A collection of Letters, bearing his name (for we have reason to doubt whether they were written by him), was published at London in 1780, 8vo.

M.

M is used, 1. as a letter; 2. as a numeral; and 3. as an abbreviation. I. As a letter, M is the twelfth in the alphabet, the ninth consonant, and the second liquid. It is pronounced by striking the upper lip against the lower; in which its pronunciation agrees with that of *b*; the only difference consisting in a slight motion made in the nose in pronouncing *m*, and not in *b*; whence those who have caught cold, for *m* ordinarily pronounce *b*; the nose in that case being disabled from making the necessary motion. The names of all consonants are formed with the aid of vowels; in *em* the vowel precedes, in *be* it follows. Quintilian observes, that *m* sometimes ends Latin words, but never Greek ones; the Greeks always changing it into *n*, for the sake of the sound. II. As a numeral, M was used among the ancients for a thousand. When a dash is put on the top of it thus (M̄) it signifies 1000 times 1000, or 1,000,000. III. As an abbreviation, M stands for Manlius, Marcus, Martius, Mucius, and Monsieur: M. A. signifies magister artium, or master of arts; A. M. anno mundi, or the year of the world; M. D. doctor of medicine; MS. manuscript; and MSS. manuscripts, &c. M, in astronomical tables, &c., is used for meridional, or southern; and sometimes for meridian or mid-day. M, in medicinal prescription, is frequently used for a manipule or handful; it is also often put at the end of a recipe, for misce, mingle; or for mixtura, a mixture. Thus *m. f.* julapium, signifies mix and make a julep.

M, in law, formerly the brand or stigma of a person convicted of manslaughter, and admitted to the benefit of his clergy.

MAADIE, a lake and village of Lower Egypt, between Aboukir and Alexandria. The lake communicates on one side with the Mediterranean, and on the other with the Lake Mareotis, by narrow channels. The village is not far from Aboukir.

MAATLUYS, a large town of the Netherlands, in South Holland, situated on the Sluis diep, an arm of the Maese. Its chief pursuit is the cod and herring fishery. Population 6500. Ten miles west of Rotterdam.

MAHA, in botany, a genus of the triandria order, and diœcia class of plants. Perianth of the male trifid; that of the female as in the male; the fruit a plum two-celled superior. Species one, a native of the Friendly Isles, having small velvety flowers.

MABILLON (John), a learned French writer, born at Pierre-monte, on the frontiers of Champagne, in 1632. He was educated in the university of Rheims, and afterwards entered into the abbey of the Benedictines of St. Remy. In 1663 he was appointed keeper of the monuments of France at St. Dennis. In 1664 he went to Paris, and assisted F. D'Acheri in compiling his *Spicilegium*. Soon after he revised for the MSS. and published an edition of St. Bernard. In 1683 Colbert sent him into Germany, to search the archives and libraries of the ancient abbeys, for what would contribute to illustrate the history of the church. He published an account of this journey. In 1685 he undertook another journey into Italy, by order of the king of France; and returned in 1686 with a collection for the king's library, of above 3000 volumes of rare books, printed and in MS. He composed two volumes of the pieces which he had discovered in that country. He was highly esteemed for his virtues as well as his learning.

MABLY (Gabriel Bonnot, abbé de), a modern French political and historical writer, was born at Grenoble in 1709. He only rose in the church to the order of sub-deacon; and though related to the cardinal de Tencin, with whom he lived as secretary, avoided preferment. He even declined admission into the academy, and gave up an annuity to his relations; but the court settled upon him a pension. He died in 1785. His works

of which the Discourses upon History are best known in England, were collected in 15 vols. 8vo., 1794.

MACAO, an island and town of China, separated from the continent by a narrow channel of the bay of Canton. It is the only European settlement within the limits of the celestial empire; and was first allowed to be formed by the Portuguese, in consequence of the protection they afforded to the empire from a band of pirates. The territory is about three miles in length, and half a mile in breadth; the isthmus connecting it with the rest of the island being crossed by a wall, projecting on both sides into the sea, where the Chinese keep a gate and guard-house. Beyond this boundary Europeans are seldom permitted to pass. The streets of Macao are narrow and irregular, but the houses are built of stone, on the European plan, and are interspersed with a due portion of churches and convents. The senate-house is at the end of the only spacious and elegant street in the town. The governor's house is near the landing-place, and the English factory is a plain building contiguous to it: the United States also, and other nations, have factories here. The fortifications are numerous, but principally detached. The fortified convent of N. S. de la Guie, on the summit of a hill, commands a part of the city; and on another hill is also a fortified convent, formerly belonging to the Jesuits. These, and several batteries commanding the entrance of the harbour, mount heavy guns, and are garrisoned by from 200 to 300 troops, principally Indian Portuguese sent from Goa.

The population of Macao is estimated at 1400 males, mostly born in the city and of mixed breed; the number of Europeans being very trifling. The females are reckoned at 2400, a great portion of whom are Tartars by birth, purchased in infancy, and adopted by the Portuguese as future wives for their sons. The village of Moa, which adjoins the city, is inhabited entirely by Chinese, to the supposed number of 25,000, and those who live in the boats in the harbour may be 5000, making the whole population of the peninsula 33,800.

Macao presents the phenomenon of a city under two distinct and very opposite governments; for, though the full sovereignty of the peninsula nominally belongs to the Portuguese in virtue of the original grant, the Chinese have gradually encroached on their privileges, until at last they have usurped the entire authority *de facto*, and, commanding as they do the supply of provisions, the whole place is completely at their mercy. Originally the Portuguese were authorised to oblige the Chinese to quit the peninsula at sunset; but, this precaution being neglected, the Chinese have not only fixed themselves in the village of Moa, but even claim a great authority within the city, so that the Portuguese cannot even repair their houses without permission from the mandarin; neither can they cultivate the scanty portion of soil of which they are the nominal proprietors, the Chinese having covered every spot unbuild on with tombs; and, by their religion and custom, the spot of ground

in which a body is interred immediately becomes the sacred property of the family of the deceased, and is for ever held inviolate. The Portuguese government of Macao consists of a governor, a king's lieutenant, or *disembacador*; the first sent from Goa for three years, and the latter from Lisbon for five. The bishop, who is suffragan of Goa, is the third person in the government. The municipal government is in a senate, which assumes the pompous title of the august senate of the noble city of Macao. The mandarin of Hong-Chang-foo, a town of 100,000 inhabitants, seven leagues west of Macao, has the immediate superintendence of the Chinese government of Macao.

The harbour of Macao is formed by the west side of the peninsula, and the east side of an island; it can receive vessels eighteen or nineteen feet draft. Four miles south of the city is another port, named the Typa, formed by four rocky islands, and fit for vessels of twenty feet.

No stranger can leave Macao without visiting the grotto in which Camoens is supposed to have composed his *Lusiad*; and, indeed, the situation is capable of inspiring a poetical feeling, commanding an extensive and magnificent view of the sea and neighbouring islands. As no European woman is permitted to set foot on the Chinese territory, all those who may be on board ships going into the river of Canton are always landed at Macao, to wait the return of the ship.

Macao was at one time a place of the greatest importance to the Portuguese, being the centre of their trade with China, Japan, Siam, Cochin-China, and all the countries in this part of Asia. Since the general decline of their Indian trade, which has been prosecuted by other nations with such superior success and activity, it has sunk into comparative insignificance. Long. 113° 32' E., lat. 22° 10' N.

MACAO, in ornithology. See *PSITTACUS*.

MACARIA (*Μακάρια*, i. e. happiness), in mythology, daughter of Hercules and Dejanira. During the war between Eurystheus and the Heracles, who were supported by the Athenians, she devoted herself to death, to insure victory to her brethren, according to the response of the oracle. The Athenians, therefore, decreed divine honors to her, and worshipped her as the goddess of happiness. See *FELICITAS*.

MACARIANS, in ecclesiastical history, the followers of Macarius, an Egyptian monk, who was distinguished, towards the close of the fourth century, for his sanctity and virtue. In his writings there are some superstitious tenets, and certain opinions tainted with Origenism.

MACARIANS was also the name of another sect, the followers of Macarius, a native of Ireland, who, about the close of the ninth century, propagated in France the error afterwards maintained by Averrhoes, that one individual intelligence or soul performed the spiritual and rational functions in all the human race.

MACARONIAN, or MACARONIC, a kind of burlesque poetry, consisting of a jumble of words of different languages, with words of the vulgar tongue Latinised, and Latin words modernised. Some derive the word from French

macaron, or *macaroon*, a kind of cake, which, from being composed of various ingredients, occasioned this kind of poetry, which consists of Latin, Italian, Spanish, French, English, &c., to be called by its name. Folengio, a Benedictine monk, was the first who invented this kind of verse. See FOLENGIO. The best pieces of this kind are, the *Baldus* of Folengio, and *Macaronis Forma*, by Stefonio a Jesuit, among the Italians; and the *Reatus veritabilis*, &c., among the French. Rabelais first transferred the macaronic style out of the Italian verse into French prose, in his *Pantagruel*. We have little in English in the macaronian way, but some pieces collected in Camden's remains. But the Germans and Netherlanders have had their macaronic poets. Certamen Catholicum cum Calvinistis, by Martinus Hamconius Frisius, contains about 1200 verses, all the words whereof began with C. Drummond of Hawthornden's *Polemo-Middinia* is reckoned to be equal to any thing written in this style. The following lines may serve as an example :—

Archelos pistoliferos furiamque manantum,
Et grandem esmentam quæ inopinum facta ruelle
est :
Toxinumque alto troublantem corda clochero, &c.

MAC'ARON, *n. s.* Ital. *mucrona*. A coarse rude fellow.

Like a big wife, at sight of loathed meat,
Ready to travail ; so I sigh and sweat,
To hear this *macaroon* talk on in vain. *Donne*.

MACARTHEY (Sir Charles), an Irish officer, late governor of Sierra Leone, was, in 1796, an officer in the Irish brigade, and in 1821 lieutenant-colonel in the African corps. On the war breaking out with the Ashantees he went to Cape Coast, and the king of those barbarians is said to have sent him a message, expressing his hope to have his head as an ornament for his great war drum. This message made a considerable impression on the mind of Sir Charles, and he frequently mentioned it in conversation. At length, in 1823, hostilities commenced, and he marched against the Ashantees with a mixed force of Europeans and blacks, the latter of whom ran away, and, the whites being defeated, their commander was captured by the Ashantee chief, who realised his menace, January 21st, 1824. In a subsequent battle, this trophy, however, was recovered, and conveyed to his relations.

MACARTNEY (George earl of) was born at the family mansion of Lissanoure, in Ireland. When very young he was placed under the charge of a clergyman. At the age of thirteen he was admitted a fellow commoner of Trinity College; and, in 1759, he took the degree of master of arts. From Dublin he went to London, and was entered of the society of the Middle Temple, where he formed an intimacy with Mr. Burke, and many other characters then rising into eminence. In 1764 Mr. Macartney was appointed envoy extraordinary to the empress of Russia; and his zeal and penetration, in the exercise of his high office, gave ample evidence that the choice had been judiciously made. Upon his return from St. Petersburg, a mission to the

court of Peking was suggested by Lord Melville, then president of the board of control, and Macartney was named by ministry with a salary of £15,000 a-year. The obstacles which were raised, by the absurd jealousy and prejudices of the Chinese, to a free commercial intercourse with this country, as well as the general failure of the leading objects of the embassy, are well known to all our readers. Our ambassador, accordingly, left the court of China on the 17th of March, 1794, and landed at Portsmouth on the 5th of September of the same year. Whatever was his success in foreign countries, his exertions were not overlooked at home; for the king had, by patent dated the 1st of March, 1794, advanced him to the title of earl of Macartney, in the county of Antrim. His lordship died the 31st of March, 1806.

MACAS, a woody district of the province of Quixos and Macas, in South America, being the most easterly part of Quito. It is bounded on the south by the province of Jaen de Bracamores, and west by those of Riobamba and Cuença, from which it is separated by the eastern chain of the Andes. The nearness of Macas to the Andes causes a sensible difference betwixt its temperature and that of Quito. The winter begins here in April, and lasts till September, which is the time of summer betwixt the Cordilleras; and at Macas the fine season is in September. It is hot and moist, and its territory is fertile in seeds and fruits, sugar and cotton; but the principal produce is a very fine tobacco. This province is exposed to frequent ravages from the Indians. Among the great variety of trees, the most remarkable are the storax and cinnamon, which last is said to be of a superior quality to that of Ceylon. Copal and wild wax are also brought from Macas; but the latter is of little value, as it never indurates, and the smell is very strong.

MACAS, the capital of the province of that name (formerly called Sevilla del Oro, on account of its gold mines), is now but a small place. Population, chiefly people of color, 700 : 138 miles south of Quito.

MACASSAR, a former kingdom of the island of Celebes, on the south-west coast, extended along the coast from Boeleboele, in the bay of Boni, to the point of Lassum, or Lassoa, and thence westward to the point of Touratti, or Tanakeke, and along the west coast northward to Tanette, or Aganondje : reaching inland as far as Boni and Soping. Its power was at the highest about the middle of the last century, when its princes had rendered Loma, Mandelly, Bima, Tambora, Dampo, and Sangar, tributary to them; and had conquered Bouton, Bungay, Gapil, Sumbawa, and the Xulla Islands. They also held the government of Saleyer, which had been given to Macassar by Baab Ullach, king of Ternate; were in strict alliance with the inhabitants of Bali, and coined gold coins (probably the gold mas), of the value of sixty Dutch stivers. The empire of Macassar was not entirely subverted by the Dutch until 1778.

MACASSAR, or Fort Rotterdam, the chief Dutch settlement in the island of Celebes, is situated on the south-west coast, and was built by the natives, with the assistance of the Portuguese. It is about 800 feet from the beach,

opposite to the road, where a pier extends, which serves for unloading the ships, and close to which there are fifteen or sixteen feet water. The bay is full of small islands and sand-banks. The walls of the fort are of rock-stone, high and strong; and without the land-gate is a large plain, on the north side of which is situated the town. Towards the sea is also a strong battery, which commands the roads to a great distance. The streets, which are broad, cross each other at right angles, pointing to the four cardinal points; at the end of one of them is the orphan-house, a large building, but in a ruinous state; the houses, generally, are respectable. The Chinese all live together in one street. The town is palisadoed all round, and is at night closed by gates. The governor's house stands without the town, to the southward. The church has been rebuilt within these few years. The environs form an extensive plain, extending eight or ten miles, and which reaches to the foot of a range of high mountains. The country is considered high and healthy. The settlement is flourishing; and Chinese junks from this place carry on a direct trade with China, so that the mixed population is very considerable. The beef here is good and of reasonable price; rice, poultry, deer, and wild hogs, are also in plenty: water is generally procured from a small rivulet which runs near the town; but the best is from the wells, and can be readily shipped from the pier. Abundance of excellent fish are caught in the roads. This island was discovered by the Portuguese about 1525, who obtained permission to establish themselves, where they remained quiet till about 1660, when they were driven out by the Dutch. The English established a factory here in 1615, which they were under the necessity of abandoning. The Dutch have frequently been engaged in contests with the natives for the possession of the country; but they always succeeded in repelling them. In 1810 the settlement surrendered to the British, but was returned to the Dutch in 1814. Long. 119° 48' E., lat. 5° 9' S.

MACASSAR, STRAITS OF, separate the islands of Borneo and Celebes, and are about 350 miles long, and from 110 to 140 miles wide, except at the north entrance, where they are contracted to fifty miles. This part of the eastern seas is much frequented by ships bound to China late in the season: but it abounds in shoals and rocks. In January and February strong northerly winds prevail.

MACAULAY (Catharine), a celebrated female historian, daughter of John Sawbridge, esq. of Ollantigh, in Kent. She was married June 13th, 1760, to George Macaulay, M. D., who left her a widow with one daughter. In 1778 she married a younger brother of the famous empiric Dr. Graham. She wrote, 1. *The History of England, from the Accession of James I. to the Revolution*; the first volume of which appeared in 1763, 4to, and the eighth and last in 1783. This work was very popular at this time, and the observations of the author are often acute and ingenious; but her republican prejudices deprive it of all claim to impartiality. 2. *A Modest Plea for the Property of Copy Right*. 3. *Observations on a Pamphlet, entitled Thoughts on*

the Causes of the present Discontents, 1770, 8vo. 4. *Remarks on Mr. Hobbes's Rudiments of Government and Society*, 8vo. 5. *Addresses to the People of England, Scotland, and Ireland, on the present important crisis of affairs*, 1755. 6. *History of England, from the Revolution to the present time, in a series of letters to the Rev. Dr. Wilson*, 1778, 4to. 7. *Treatise on the Immutability of Moral Truth*, 1783, 8vo. and 8. *Letters on Education*, 8vo. 1790. She was a keen republican. Dr. Wilson made her a present of a handsome house, called Alfred House, in Bath; and erected a statue of her while living, in the character of liberty, in his parish church of Walbrook. She died at Binfield, in Berks, 23d of June, 1791.

MACAW, *n. s.* From *Macao* probably. A tree. See **PHENIX**.

MACBETH, a Scotch nobleman of the blood royal, who murdered Duncan I. king of Scotland, A. D. 1046; and chasing Malcolm Canmore, his son and heir, into England, usurped the crown. Siward, earl of Northumberland, whose daughter Duncan had married, undertook, by order of Edward the Confessor, the protection of the fugitive prince, marched with an army into Scotland, defeated and killed Macbeth, and restored Malcolm to the throne of his ancestors. Shakspeare has made this transaction the subject of one of his finest tragedies.

MACBRIDE (David), Dr., an eminent physician and philosopher, descended from an ancient Scotch family in the county of Galloway. His grandfather and father were presbyterian clergymen in Ireland: the former at Belfast; the latter at Ballymony in Antrim, where he married, and where our author was born in April 1726. After the usual education, and having studied some time under an eminent surgeon in his native place, he was sent to the university of Glasgow, and afterwards to that of Edinburgh. He then went on board the navy as a surgeon's mate, and after some time was raised to the rank of surgeon. Although in this situation, he acquired practical experience, yet, having been rather young when he first attended the classes, he returned to Edinburgh, and resumed his academical pursuits, under Dr. Monro. The celebrity of the medical teachers in London led him also to visit that capital, where he studied under Dr. Hunter and Dr. Smellie. Thus qualified for the exercise of his profession, about the end of 1749, he fixed his residence in Dublin. His first publication, entitled *Experimental Essays on Medical and Philosophical Subjects*, appeared in 1764. Having thus equally distinguished himself as an ingenious philosopher and able practitioner, his name was enrolled with honor in the lists of many learned societies; and the university where his studies had commenced conferred upon him the degree of M. D.—Nor were his talents confined to the advancement of medicine alone. He published, first, *An Account of a New Method of Tanning*; and afterwards, *Instructions for carrying on the New Method of Tanning*. As a testimony of respect for his ingenuity, prize medals were now conferred upon him by the societies of arts both in London and Dublin. His last and most ex-

tensive publication was, *A Methodical Introduction to the Theory and Practice of Medicine*. Most, if not all, of these publications went through various editions, and were translated into different languages. Meantime his practice increased so rapidly, that he had more business than he could transact. In this situation, he was attacked with a fever, which put an end to his life on the 13th of December, 1778, in the fifty-third year of his age. During his residence in Dublin he was twice married, and had children by both his wives, none of whom survived him.

MACCABÆUS (Judas). See **Jews**.

MACCABEES, two apocryphal books, containing the history of the Maccabees and their wars against the Syrian kings, in defence of their religion and liberties, so called from Mattathias, or his son Judas Maccabæus, who was so named from the word מַכְבִּי, formed of the initials of מִי נִמְכַּח כְּאֵלֹהִים, q. d., Who is like unto thee, O Lord, among the gods; which was the motto of his standard; whence those who fought under his standard were called Maccabees. The first book of the Maccabees is an excellent history, and comes nearest to the style of the sacred historians of any extant. It was written originally in the Chaldee language, of the Jerusalem dialect, and was extant in this language in the time of Jerome. From the Chaldee it was translated into Greek, and from the Greek into Latin. It is supposed to have been written by John Hyrcanus, the son of Simon, who was prince and high priest of the Jews nearly thirty years, and began his government at the time where this history ends. It contains the history of forty years, from the reign of Antiochus Epiphanes to the death of Simon the high priest, that is, from A. M. 3829 to 3869; A. A. C. 131. The second book of the Maccabees begins with two epistles sent from the Jews of Jerusalem to the Jews of Egypt and Alexandria; both reckoned spurious. After these follows the preface to the history, which is an abridgment of a larger work, composed by one Jason, a Jew of Cyrene, who wrote in Greek the history of Judas Maccabæus and his brethren, and the wars against Antiochus Epiphanes, and Eupator. This book does not equal the accuracy of the first. It contains a history of about fifteen years, from the execution of Heliodorus's commission, who was sent by Seleucus to carry away the treasures of the temple, to the victory obtained by Judas Maccabæus over Nicanor; that is, from A. M. 3828, to the year 3843, or A. A. C. 147. There are in the Polyglot bibles, both of Paris and London, Syriac versions of both these books; but they, as well as our English version, are translated from the Greek. There is also a third book of the Maccabees, containing the history of the persecution of the Jews in Egypt, by Ptolemy Philopator, and their sufferings under it. It seems to have been written by some Alexandrian Jew in Greek, soon after the time of Jesus, the son of Sirach. It is in most of the ancient MS. copies of the Greek Septuagint, particularly in the Alexandrian and Vatican, but was never inserted into the vulgar Latin version of the bible, nor consequently into any of our English copies. And Josephus's

history of the martyrs, that suffered under Antiochus Epiphanes, is found in some MS. Greek bibles, under the name of the Fourth book of the Maccabees.

MACCABEES, the followers of Judas Maccabæus. The name was generally applied to all who suffered in the cause of true religion, under the Egyptian and Syrian tyrants.

MACCLESFIELD, anciently written *Maxfield*, is a large manufacturing borough and market-town district, eighteen miles and a half south from Manchester, twelve from Stockport, and 167½ north-west from London. Randal, earl of Chester, first constituted it a borough; and in or near the year 1261, the prince of Wales, afterwards king Edward I., made it a free borough, and granted the burgesses a mercatorial guild. By the conditions of this charter, the burgesses were required to grind at the earl's mill only, and to bake at his oven. This oven, or bakehouse, is still vested in the crown, and a lease of it was granted in 1791, for twenty-four years and a half. By a charter of queen Elizabeth's, the corporate body was to consist of twenty-four capital burgesses; but a later charter, from king Charles II., names a town-clerk, a coroner, two sergeants at mace, &c., as part of the corporation. Among other articles delivered into the custody of the sergeants at mace, in the year 1620, was 'a bridle for a curst queane.' In the town-box is preserved a copy of a petition sent to Henry VII. soon after the battle of Bosworth, praying that the citizens might not lose their charter, although unable to fill up the due number of aldermen, having lost so many of their principal inhabitants in that battle in his service. The corporation are entitled to all springs and water-courses in the manor of Macclesfield for supplying the town with water, from which sources, with the tolls of the market and fairs, considerable emolument is derived. A court of record is held once a month for the liberty of the hundred, and another for the manor and forest; a court leet is also held for these jurisdictions. This town is the head of the hundred of Macclesfield-forest, where the sessions are held at Michaelmas and Easter, to try persons charged with misdemeanors; an inferior court is held weekly by the mayor and justices.

Macclesfield contains two churches and several chapels. St. Michael's is a handsome building; the tower, which has a peal of eight bells, is seventy-two feet high. The parochial chapel was originally built by king Edward I., in the year 1278; it was almost rebuilt, and greatly enlarged in 1740. On the south side of this chapel is an oratory, or burial chapel, which belongs to the Savage family; several of whom were interred here. It now belongs to the earl of Cholmondeley. In the Legh chapel are some sepulchral memorials of the family of Legh of Lyme. A new chapel was erected in the year 1775 by Charles Roe, esq.; and an act of parliament was obtained in 1779, when it was called Christ's Church, or chapel, and the living was made a perpetual cure, or benefice, to be subject to the bishop of Chester. In the chancel is a marble monument of the founder, by Bacon. Macclesfield sends two members to parliament.

In this town are meeting-houses for Methodists, and for the Presbyterians, Quakers, and Independents. A grammar-school was founded here by Sir John Perceval, Knt. Edward VI. increased its revenues, by giving lands and houses in and near the city of Chester. An act of parliament was obtained in 1768, to regulate the management, and define the constitution of this noted seminary. The property left to it originally brought in an income of but £25 per annum, it now produces £900.

From the abundance of coal and other minerals, in the neighbourhood, the manufactures of Macclesfield have become very considerable. These at one time consisted chiefly of wrought buttons, of silk, mohair, and twist, of which trade this town has always been the centre. This business, however, having declined, the cotton manufacture succeeded to it. There are about thirty silk mills for making sewing silk, and silk for the manufacturers. Coals are found in the immediate neighbourhood, and not far from the town is a considerable brewery. There are also numerous cotton factories: goods are also manufactured in private houses; and there are several muslin, silk-weaving, and twist factories. The weaving of silk handkerchiefs, and the making of ferret and calico, are increasing manufactures; here are five or six dye-houses, principally for silk, a tape manufactory, and a bleaching ground. The new regulations concerning the silk manufactures have considerably increased the trade of this town.

MACDIARMID (John), an ingenious miscellaneous writer, was born in 1779 at Weem, in Perthshire, of which parish his father was minister. He was educated for the church, but on coming to London became editor of the *St. James's Chronicle*. He published in 1803 *An Enquiry into the System of Military Defence*, 2 vols. 8vo.; which was followed by *An Enquiry into the Nature of Civil and Military Subordination*. His last and best work was entitled *Lives of British Statesmen*, 4to. He died in 1808.

MACE, *n. s.* Sax. *mace*; Span. *maza*; Ital. *mazza*; Fr. *massue*; Lat. *massa*; Gr. *μαζα*. A heavy weapon, or metal club; an ensign of authority.

With him ther wenten knightes many on
Som wol ben armed in an habergeon,
— Som wol ben armed on his legs wele,
And have an axe, and som a mace of stele.

Chaucer. *Canterbury Tales*.

He mightily upheld that royal mace,
Which now thou bearest. *Faerie Queene*.
The Turkish troops breaking in with their scy-
meters and heavy iron maces, made a most bloody
execution. *Knolles*.

O murderous slumber!
Layest thou thy leaden mace upon my boy
That plays the musick?

Shakespeare. *Julius Cæsar*.

* Death with his mace petrified smote. *Milton*.
With his mace their monarch struck the ground;
With inward trembling earth received the wound,
And rising streams a ready passage found.

Dryden.

The mighty maces with such haste descend,
They break the bones, and make the armour bend.

I was placed at a quadrangular table, opposite to the mace-bearer. *Spectator*.

The crown, a mark of dignity and symbol of power, like the mace and sceptre, was also taken from the May: being the representative of the garland or crown, which then hung on the top of the May, or pole, it was the signal of convening the people.

Brand's *Antiquities*.

MACE, *n. s.* Fr. Ital. and Lat. *macis*. A **MACEALF**. A kind of spice: mace-ale is, also spiced with mace.

Water, vinegar, and honey, is a most excellent sudorific: it is more effectual with a little mace added to it. *Arbuthnot*.

I prescribed him a draught of maceale, with hopes to dispose him to rest. *Wiseman's Surgery*.

The nutmeg is inclosed in a threefold covering, of which the second is mace: it is thin and membranaceous, of an oleaginous and yellowish colour: it has an extremely fragrant, aromatick, and agreeable smell, and a pleasant, but acrid and oleaginous taste.

Hill's *Materia Medica*.

The **MACE** was anciently much used by the cavalry of all nations. It was commonly made of iron; its figure much resembles a chocolate-mill; many specimens may be seen in the tower. It was with one of these that Walworth, mayor of London, knocked the rebel Wat Tyler from off his horse in Smithfield, for approaching the young king Richard II. in an insolent manner; and, as he fell, he despatched him with his dagger. In modern times it has changed its form; and, being no longer an instrument of war, is made of copper or silver gilt, ornamented with a crown, globe, and cross, and is now the chief ensign of authority throughout Great Britain. Similar to the ancient maces were those staves at the end of which iron or leaden balls armed with spikes were suspended by chains; they were till lately carried by the pioneers of the trained bands or city militia.

MACE, in the materia medica, the second coat or covering of the kernel of the nutmeg, is a thin and membranaceous substance, of an oleaginous nature, and a yellowish color; being met with in flakes of an inch or more in length, which are divided into a multitude of ramifications. It is of an extremely fragrant, aromatic, and agreeable flavor; and of a pleasant, but acrid oleaginous taste. It is carminative, stomachic, and astringent; and possesses all the virtues of nutmeg, but has less astringency. The oils of mace and nutmeg, whether prepared by distillation or expression, are so much of the same nature, that they may be indiscriminately used for one another on all occasions. They give ease in cholics, and often in nephritic cases, taken internally from one drop to five or six of the distilled oil, or an equal quantity of the expressed; and externally, they are of use to rub paralytic limbs: they also assist digestion; and will often stop vomitings, and hiccoughs, only by being rubbed on the region of the stomach.

MACEDON, or **MACEDONIA**, a celebrated kingdom of antiquity, bounded on the east by the *Ægean Sea*; on the south by *Thessaly* and *Epirus*; on the west by the *Ionian Sea* or *Adriatic*; and on the north at first by the *Strymon* and the *Scardian mountains*, but afterwards by the *Næsus*.

The kingdom of Macedonia extended in a direct line only 150 miles in length; but the windings of the coast lengthened it out to three times that extent; in which almost every convenient situation was occupied by a Grecian seaport. The country was naturally divided by the Thermaic and Strymonic gulfs, into the provinces of Pieria, Chalcis, and Pangæus. The middle region, which took its name from a city of Eubœa, whence it was originally peopled, was very fertile and pleasant; the inland country being diversified by lakes, rivers, and arms of the sea, was extremely convenient for inland navigation, while the towns of Amphipolis, Potidea, Acanthus, and many others, afforded marts for the commerce of the republics of Greece, as well as of Thrace and Macedon. On one side of this district were the mountains of Pangæus, and on the other the plains of Pieria. The Pangæan mountains, which extended ninety miles towards the east on the river Nessus, though proper neither for corn nor pasture, produced plenty of timber for ship-building; while the southern branches of the mountain contained rich veins of gold and silver; but these, though wrought successively by the Thasians and the Athenians, were only brought to perfection by king Philip II., who extracted from them gold and silver to the value of £200,000 sterling annually. Pieria extended fifty miles along the Thermaic Gulf, to the confines of Thessaly and Mount Pindus. The inland part of the country was beautifully diversified by shady hills and fountains; and so admirably calculated for retirement, that the ancients looked upon it to be the favorite haunt of the muses, and accordingly bestowed upon them the title of Pierides. In the most early times this country was called Æmathia from Æmathias, one of its princes. The name of Macedon is said to have been derived from Macedo, a descendant of Deucalion; though others suppose it to have been only a corruption of Mygdonia, a district of the country. In those remote ages, Macedon was divided into a great number of petty principalities, of which scarcely even the names are now known.

All authors agree, that Caranus was the first who established any permanent sovereignty in Macedon. He was an Argive, a descendant of Hercules, and about 814 years B. C. conducted a small colony of his countrymen into the inland district of Macedon, then called Æmathia. This territory was about 300 miles in circumference. On the south it was separated from the sea by a number of Greek republics, of which the most considerable were those of Olynthus and Amphipolis; and on the north-east and west was surrounded by the kingdoms of Thrace, Pæonia, and Illyricum. According to the traditions of those times Caranus, having consulted the oracle on the success of his intended expedition, was commanded to be directed by the goats in the establishment of his empire. For some time he proceeded at random, without knowing what to make of the oracle's answer; but happening to enter the small kingdom of Æmathia, at that time governed by king Midas, he observed a herd of goats running towards Edessa the capital. Recollecting then the answer of the oracle, he

attacked and took the city by surprise, soon after making himself master of the whole kingdom. In memory of this remarkable event he called the city Ægea, and the people Ægiates, from the goats who conducted him, and made use of the figure of a goat in his standard. This fable accounts for the figure of a goat on the coins of Philip and his successors. The little colony of Argives led into Æmathia by Caranus would soon have been overwhelmed by the barbarous nations who surrounded it, had not this prince and his subjects taken care to ingratiate themselves with their neighbours, rather than to attempt to subdue them. They instructed them in the Grecian religion and government, and in the knowledge of many useful arts; adopting themselves, in some degree, the language and manners of the barbarians. Thus they gradually associated with the fierce and warlike tribes in their neighbourhood; and this prudent conduct, being followed by succeeding generations, may be looked upon as one of the causes of the Macedonian greatness. Caranus dying, after a reign of twenty eight years, left the kingdom to his son Cœnus in 786, who, having considerably enlarged his dominions, was succeeded by Thurymas in 774; and he by Perdiccas I. in 729. This last prince is by Thucydides and Herodotus accounted the founder of the Macedonian monarchy; but his history is so obscured by fable that nothing certain can now be known concerning it. In process of time, however, the good understanding which had subsisted between the Macedonians and their barbarous neighbours began to be interrupted; and in 691 B. C. the kingdom was for the first time invaded by the Illyrians. At first they did considerable damage by their ravages; but Argæus the son and successor of Perdiccas I., having decoyed them into an ambush, cut off great numbers, and obliged the remainder to leave the kingdom. In the reign of his successors, however, they returned, and often proved very troublesome enemies. Argæus was succeeded by his son Philip I., in 640 B. C., and he by his son Europas in 602; who left the kingdom to his son Alceas in 576.

Alceas ascended the throne about the time that the Persian monarchy was founded, and had the dexterity to preserve his dominions from the encroachments of the Greeks on the one hand, and of the Persians on the other; but in the reign of his son Amyntas I., who succeeded him in 547, a formal demand was made of submission to the great king Darius, by sending him a present of earth and water. Seven ambassadors were sent on this errand by Megabyzus, one of the officers of Darius. They were sumptuously entertained by Amyntas; but, having attempted to take some indecent liberties with the Macedonian women, Alexander the king's son caused them all to be murdered. This rash action had almost proved the ruin of the kingdom; but Alexander pacified Bubaris, the general sent against him by Megabyzus, by means of his sister Gygæa, a very beautiful woman, with whom the Persian fell in love, and afterwards married her. From this time the Macedonians were accounted the faithful allies of the Persians; and Alexander obtained the country in the neighbourhood of

Mount Hæmus and Olympus, at the same time that the city of Alabanda in Phrygia was given to Amyntas. The Macedonians distinguished themselves in the time of the Persian invasion of Greece, by furnishing their allies with 200,000 recruits: though some cities, particularly Potidæa, Olynthus, and Pallene, adhered to the Grecian interest. The last two were taken and razed, and the inhabitants massacred by the Persians; but Potidæa escaped by reason of the sea breaking into the Persians' camp, where it did great damage. Alexander, however, afterwards thought proper to court the favor of the Greeks by giving them intelligence of the time when Mardonius designed to attack them. The remaining transactions of this reign are entirely unknown, farther than that he enlarged his dominions to the river Nessus on the east, and the Axios on the west.

Alexander I. was succeeded, in 454, by his son Perdiccas II., whose reign was a series of unsuccessful intrigues for the destruction of the Athenian influence in Olynthus, and the establishment of that of Macedon in its stead. Perdiccas II. was succeeded about 417 B.C. by his son Archelaus, who enlarged his dominions by the conquest of Qydna, and other places in Pieria, though his ambition seems rather to have been to improve his dominions than greatly to extend them. He facilitated the communication between the principal towns of Macedon, by cutting straight roads through the country: built walls and fortresses in such places as afforded favorable situations; encouraged agriculture and the arts, particularly those subservient to war; formed magazines of arms; raised and disciplined a considerable body of cavalry; and, in a word, added more to the solid grandeur of Macedon than had been done by all his predecessors. Nor was he regardless of the arts of peace. His palace was adorned by the works of Grecian painters. Euripides was long entertained at his court; Socrates and other men of merit and genius were invited to reside in Macedon, and treated with distinguished regard by a monarch attentive to promote his own glory and the happiness of his subjects. This great monarch died after a reign of forty-one years, but according to others of six; and after his death the kingdom fell under the power of weak princes and usurpers. A number of competitors appeared for the throne: and these by turns called in to their assistance the Thracians, Illyrians, Thessalians, the Olynthian confederacy, Athens, Sparta, and Thebes.

Bardyllis, an active and daring chief, who, from being head of a gang of robbers, had become sovereign of the Illyrians, entered Macedon at the head of a numerous army, deposed Amyntas II., the grandson of Alexander I., and set up in his place one Argæus, who consented to become tributary to the Illyrians. Another candidate for the throne, named Pausanias, was supported by the Thracians; but, by the assistance of the Thessalians and Olynthians, Amyntas was restored in 397. After his restoration, however, the Olynthians refused to deliver up several places of importance belonging to Macedon, which Amyntas had either entrusted to their care

or which they had taken from his antagonist. Amyntas complained to Sparta; and that republic sent first 2000 men under Eudamidas, and afterwards a powerful reinforcement under his brother Phæbidas; but these last were detained till the season for action was past. Eudamidas, however, with his small army, performed essential service. The appearance of a Spartan army encouraged the subjects and allies of the Olynthians to revolt; and the city of Potidæa surrendered soon after his arrival. But being too much elated with his success, Eudamidas approached so near Olynthus, that he was attacked, defeated, and killed in a sally of the citizens. He was succeeded by Teleutias the brother of Agesilaus, who commanded a body of 10,000 Spartans, and was assisted by king Amyntas and Derdas his brother, the governor of the most westerly province of Macedon, which abounded in cavalry. By these formidable enemies the Olynthians were defeated in a number of battles, and obliged to shut themselves up in their city; on which Teleutias advanced with his whole forces to invest Olynthus. But his excessive eagerness to destroy his enemies proved his ruin. A body of Olynthian horse passed the Amnias in sight of the allied army, though so much superior in number. Teleutias ordered his targeteers to attack them; the Olynthians, having retreated across the river, were closely pursued by the Lacedæmonians, great part of whom also passed the river; but the Olynthians, suddenly turning upon them, killed upwards of 100, with Tlemonidas their leader. Teleutias, exasperated at this disaster, ordered the remainder of the targeteers and cavalry to pursue; while he himself advanced at the head of the heavy armed foot with such celerity that they began to fall into disorder. But the Lacedæmonians imprudently advancing just under the battlements of the city, the townsmen on the walls discharged upon them a shower of missile weapons, while the flower of the Olynthian troops sallied forth and attacked them with such violence, that Teleutias was slain, the Spartans defeated, and the whole army at last dispersed with great slaughter, and obliged to shelter themselves in Acanthus, Apollonia, Spartolus, and Potidæa. The Spartans, undismayed by this terrible disaster, continued their operations under their king Agesipolis, and after his death under Polybiades, an experienced general, with so much success, by sea and land, that the Olynthians, after holding out for ten months, at last submitted on very humiliating conditions. They formally renounced all claim to the dominions of Chalcis; they ceded the Macedonian cities to their ancient governor; and in consequence of this Amyntas left the city of Ægea or Edessa, where till now he had held his royal residence, and fixed it at Pella, a city of great strength and beauty, situated on an eminence, which, together with a plain of considerable extent, was defended by impenetrable morasses, and by the rivers Axios and Lydias. It was about fifteen miles from the Ægean Sea, with which it communicated by these rivers. It was originally founded by Greeks, who had lately conquered and peopled it: but, in consequence of the misfortunes of Olynthus, it now became

the capital of Macedon, which it continued ever after to be. Amyntas, thus fully established in his dominions, continued to enjoy tranquillity during the rest of his life, and was succeeded by his son Alexander II. in 371 B. C.

The reign of Alexander II. was short, and disturbed by invasions of the Illyrians; from whom he was obliged to purchase a peace. His two brothers, Perdiccas and Philip, being both very young, Pausanias again usurped the throne; but was soon deprived of it by the exertions of Iphicrates the Athenian; who, in gratitude for favors he had formerly received from Amyntas and his queen Eurydice, expelled the usurper, and established Perdiccas, the eldest son, on the throne. During the minority of Perdiccas, however, his bastard brother, Ptolemy Alorites, who was his guardian, usurped the throne; but was deposed by the Theban general Pelopidas, who reinstated Perdiccas in his dominions, in 366 B. C.; and, to secure the dependence of Macedon upon Thebes, carried along with him thirty Macedon youths as hostages; among whom was Philip the king's younger brother. Perdiccas now, elated by the protection of such powerful allies, forgot Iphicrates and the Athenians, and even disputed their right to Amphipolis, which had been decreed to them by the general council of Greece. He also refused to Bardyllis, the Illyrian, the tribute which the Macedonians had agreed to pay him, which occasioned a war with that nation, wherein the Macedonians were defeated with the loss of 4000 men, Perdiccas himself being taken prisoner, and dying soon after of his wounds. The kingdom was now left in the most deplorable state. Amyntas III., the son of Perdiccas, was an infant; the Thebans, in whom Perdiccas had placed so much confidence, were deprived of the sovereignty of Greece; the Athenians, justly provoked at the ingratitude of the late monarch, showed an hostile disposition; the Illyrians ravaged the west and the Pæonians the north quarter of the kingdom; the Thracians supported Pausanias, and proposed to send him into Macedon at the head of a numerous army: while Argæus, the former rival of Amyntas, renewed his pretensions to the throne, and, by flattering the Athenians with the hopes of recovering Amphipolis, easily induced them to support his claims; in consequence of which they fitted out a fleet, with 3000 heavy armed soldiers, which they sent to the coast of Macedon. Philip, the late king's brother, no sooner heard of his defeat and death, than he set out privately from Thebes; and, on his arrival at Macedon, found matters in the situation above described. Naturally ambitious, he had acquired, during the time he was an hostage, a high degree of that knowledge of men and manners, which was most suited to insure his success. From the age of fifteen he had been much in the family of Epaminondas: and in his travels through Greece he had cultivated an acquaintance with Plato, Isocrates, Aristotle, and other great philosophers. His appearance in Macedon instantly changed the face of affairs. In the name of his nephew, Amyntas III., he treated with the Pæonians and Thracians; whom, by bribery and fair promises, he prevailed upon to abandon Pausanias, and withdraw their forces,

as the Illyrians had already done. And, having thus got rid of these barbarians, he was now at liberty to oppose the Athenians, who supported Argæus, and threatened a very formidable invasion. The appearance, however, of the Athenian fleet before Methone, with that of Argæus at the head of a numerous army in Pieria, having filled the whole country with consternation, Philip took the opportunity of getting Amyntas set aside, and himself declared king: for which the danger of the times afforded a very plausible pretext.

Argæus, in the mean time, having advanced with his Athenian allies towards Edessa, Philip, after cutting off great numbers of his men, defeated him in a general engagement; in which Argæus, with the flower of his army, was cut in pieces, and the rest taken prisoners. As, among these prisoners, there was a great number both of Macedonians and Athenians, he determined, by his treatment of them, to ingratiate himself with both parties. The former were called into his presence, and, after a gentle reprimand, admitted to swear allegiance to him; the latter were entertained at his table, dismissed without ransom, and their baggage restored. The prisoners were just allowed time to return home, and spread abroad the news of Philip's generosity, when they were followed by ambassadors from Macedon with proposals for peace. As he knew that the loss of Amphipolis had greatly irritated the Athenians, he now renounced his jurisdiction over it, and declared it free, and subject only to the government of its own laws. This artful conduct so wrought upon the Athenians, that they consented to the renewal of a treaty which had formerly subsisted between them and his father Amyntas II. Thus he removed all jealousy of his ambition, and even induced them to engage in a ruinous war with their allies, which occupied their attention until Philip had an opportunity of getting himself so well established on his throne, that it was impossible to overthrow him. — Being thus left at liberty to regulate his domestic concerns, he began to circumscribe the power of his chiefs; who, especially in the more remote provinces, paid very little regard to the authority of the kings of Macedon. To counteract their ambition, Philip chose a body of the bravest Macedonian youths, whom he entertained at his own table, and honored with many testimonies of his friendship, giving them the title of his companions, allowing them constantly to attend him in war and hunting. Their intimacy with the sovereign, which was considered as an indication of their merit, obliged them to superior diligence in all the severe duties of military discipline; and the young nobility, eager to participate such high honors, vied with each other in their endeavours to gain admission into this distinguished order; so that, while on the one hand they served as hostages, on the other they formed a useful seminary for future generals, by whom both Philip and Alexander were afterwards greatly assisted in their conquests. About this time Philip is said to have instituted the Macedonian phalanx; but this is disputed by Dr Gillies. Instead of this, Philip, according to our author, procured arms, horses, and other ne-

cessories for war; and introduced a more severe and exact military discipline than had formerly been known in Macedon. While he thus took the best methods to render himself secure at home and formidable abroad, the Pæonians again began to make incursions into the kingdom. The death of Agis their king, however, who was a man of great military skill, deprived them of almost every power of resistance when they were attacked. Philip, in consequence, overran their country with little opposition, and reduced them to the state of tributaries to Macedon. No sooner was this accomplished, than he undertook a winter's campaign against the Illyrians, who had long been the enemies of Macedon. They now extended their territory to the east by which means the Macedonians were excluded from the harbours on the coast of the Adriatic. This was a grievance to Philip, who seems early to have meditated the raising of a naval power; neither could he hope to be in safety, should the kingdom be left open to the incursions of a barbarous enemy; for which reasons he determined at once to humble those enemies so completely, that they should no longer give him any disturbance. After an ineffectual negotiation, he was met by Bardyllis at the head of a considerable body of infantry, but with only 400 horse. They for some time made a gallant resistance, but were at last defeated with the loss of 7000 men, among whom was Bardyllis, who fell at the age of ninety. The consequence was, the cession of a considerable part of their territory, and subjection to an annual tribute. Philip now began to put in execution greater designs than any he had yet attempted. The rich coasts to the south of Macedon, inhabited chiefly by Greeks, presented a strong temptation to his ambition and avarice. The confederacy of Olynthus, after having thrown off the yoke of Sparta, was become more powerful than ever, and could send into the field an army of 10,000 armed troops, besides a number of cavalry. Most of the towns in Chalcidice were become its allies or subjects; so that this populous province, with Pangæus on the right and Pieria on the left, formed a barrier against any incursions of the Macedonians. But Philip, anxious to establish a navy, considered the conquest of Amphipolis as more immediately necessary, as, besides its naval and commercial advantages, it would open a road to the woods and mines of Pangæus. The Amphipolitans, alarmed at the hostile designs of Philip, put themselves under the protection of the Olynthians, who readily received them into the confederacy, and sent ambassadors to Athens, requesting their assistance against Philip. But the Macedonian sent his agents to Athens, with such expedition, that they arrived before any thing could be concluded with the Olynthian deputies. Having gained over the popular orators, he flattered the senate in such an artful manner, that a negotiation was set on foot, by which Philip engaged to conquer Amphipolis for the Athenians, upon condition that they surrendered to him the fort of Pydna. Thus the Athenians, deceived by their own magistrates, and outwitted by the policy of Philip, rejected the offers of the Olynthians. The

ambassadors of Olynthus returned highly disgusted with their reception, but had scarcely communicated the news to their countrymen, when Philip's army arrived at Olynthus; and, pretending to condole with them on the affront they had received at Athens, expressed their surprise that they should court the assistance of that distant and haughty republic, when they could avail themselves of the power of Macedon, which wished to enter into alliance with their confederacy. As a proof of his sincerity, Philip offered to put them in possession of Anthemus, an important town in the vicinity, and to reduce for them the cities of Pydna and Potidæa. Thus he prevailed upon the Olynthians not only to abandon Amphipolis, but even to assist him; after which he pressed that city so closely, that, unable to defend itself alone against so powerful an enemy, it surrendered at discretion, A. A. C. 357.

Though the obstinate defence of the Amphipolitans might have furnished a pretence for severity, Philip contented himself with banishing a few of the popular leaders from whom he had most cause to dread opposition, treating the rest of the inhabitants with great clemency; but took care to add Amphipolis to his own dominions, notwithstanding his promises to the Athenians. Finding it against his interest at this time to attack the Olynthians, he cultivated the friendship of that republic with great assiduity; took the cities of Pydna and Potidæa, which he readily yielded to the Olynthians, though they had given him but little assistance in the reduction of these places. Potidæa had been garrisoned by the Athenians, and these the artful king sent back without ransom. He next took possession of the gold mines of Thrace by the conquest of Crenidæ, which he made a Macedonian colony, and named Philippi; and drew annually from its coal mines nearly 100 talents, or £200,000 sterling. The coins struck here were likewise called Philippi. Philip next took upon him to settle the affairs of Thessaly, where every thing was in confusion. This country had been greatly oppressed by Alexander tyrant of Pheræ, as well as by Tissiphonius, Pitholaus, and Lycophon, his brothers-in-law, who had murdered him. By the united efforts of the Thessalians and Macedonians, these usurpers were easily overthrown, and the Thessalians, out of a mistaken gratitude, surrendered to Philip all the revenues arising from their fairs and towns of commerce, as well as the conveniences of their harbours and shipping. Having thus not only established his sovereignty, but rendered himself very formidable to his neighbors, he formed an alliance with Arybbas king of Epirus, and in A. A. C. 357 married Olympias, his sister. The nuptials were solemnised at Pella with great pomp, and several months were spent in shows and diversions: during which Philip showed such proneness to vice of every kind, as disgraced him in the eyes of his neighbours, and probably laid the foundation of his domestic unhappiness. So much was his behaviour taken notice of by the neighbouring states, that the Pæonians and Illyrians threw off the yoke, and engaged in their schemes Cotys king of Thrace. But Philip giving up his dissipation, early in the spring of 356,

took the field with the flower of his troops, and, marching in person against the Pæonians and Thracians, despatched Parmenio into Illyria. Both enterprises proved successful; and, while Philip returned victorious from Thrace, he received an account of Parmenio's victory; a second messenger informed him of a victory gained by his chariot at the Olympic games; and a third that Olympias had been delivered of a son at Pella. This was the celebrated Alexander, to whom the diviners prophesied the highest prosperity and glory, from his being born in such auspicious circumstances. Soon after Alexander's birth, Philip wrote the following letter to Aristotle: 'Know that a son is born to us. We thank the gods not so much for their gift, as for bestowing it at a time when Aristotle lives. We assure ourselves that you will form him a prince worthy of his father, and worthy of Macedon.' Pæonia was now one of his provinces; on the east his dominions extended to the sea of Thasos, and on the west to the lake Lynchnidus. The Thessalians were in effect subject to his jurisdiction, and Amphipolis secured him many commercial advantages; he had a numerous and well disciplined army, with plentiful resources for supporting such an armament, and carrying on his other ambitious schemes. His first scheme was the reduction of Olynthus, the most populous and fertile country on the borders of Macedon; after which his ambition prompted him to acquire the sovereignty of all Greece. He had deprived the Athenians gradually of several settlements in Thrace and Macedon; but he took care always to give such appearance of justice to his actions, that his antagonists could hardly find a plausible pretext for engaging in war against him. He perceived that the affairs of the Greeks were drawing to a crisis, and he determined to wait the issue of their dissensions. The Phocians ploughed up the lands consecrated to Apollo, and the Amphictyons fulminated a decree against them, commanding the sacred lands to be laid waste, and imposing a heavy fine upon the community. Their resistance to this decree involved all Greece in a new war. Philip, at the beginning of this Phocian or sacred war, as it was called, was engaged in Thrace, where a civil war had taken place among the sons of Cotys. Philip interfered, and his encroachments at length became so enormous, that Kersobletes, the most powerful of the contending princes, ceded the Thracian Chersonesus to the Athenians, who sent Chares with a powerful armament to take possession of it. He took Sestos by storm, and treated the inhabitants cruelly; while Philip reduced Methone in Pieria, but during the siege lost his right eye. All this time the Phocian war raged with fury, and involved in it all the states of Greece. Lycophron, one of the Thessalian tyrants, whom Philip had deprived of his authority, had again resumed it; and, his countrymen having taken part with the Phocians, Lycophron called in Onomarchus the Phocian general to protect him against Philip; who, however, defeated Phyllus the brother of Onomarchus, whom the latter had sent into the country with a detachment of 7000 men. After this he besieged and took the city of Pegasus, driving the enemy

towards the frontiers of Phocis. Onomarchus then advanced with the whole army; and Philip, being inferior in numbers, was at first repulsed, and his troops harassed in their retreat by rocks rolled down from precipices. But returning soon with 20,000 foot and 500 horse, whom he encouraged by reminding them that they were fighting in the cause of the gods against sacrilegious wretches, the Phocians were utterly defeated; upwards of 6000 perished in the battle and pursuit, and 3000 were taken prisoners. The body of Onomarchus, being found among the slain, was hung up on a gibbet as a mark of infamy, on account of his having polluted the temple and those of the rest were thrown into the sea. After this victory, Philip set about the settlement of Thessaly; and, having detached Kersobletes from the interest of the Athenians, he established him in the sovereignty of Thrace, with a view to destroy him when a proper opportunity offered. Were he once possessed of the dominions of that prince, the way to Byzantium was open to him; and, to pave the way for this conquest, he attacked the fort of Heræum, a small and unimportant place, but valuable by its neighbourhood to Byzantium. The Athenians at last began to perceive the designs of Philip, and determined to counteract them; but, too readily giving credit to a report of his death, they discontinued their preparations, and directed their whole attention to the sacred war, which, instead of being ended by the death of Onomarchus, now raged with double fury. Phyllus, above-mentioned, undertook the cause of the Phocians; and, his affairs becoming every day more desperate, he converted into ready money the most precious materials belonging to the temple at Delphi, and with this treasure doubled the pay of the soldiers. By this new piece of sacrilege, he purchased the assistance of 1000 Lacedæmonians, 2000 Achæans, and 5000 Athenian foot, with 400 cavalry, which enabled him to take the field with great prospect of success. Philip now thought it time to throw off the mask entirely, for which the proceedings of the Athenians, particularly their league with Olynthus, furnished him with a plausible pretext; and the revenging such horrid sacrilege as had been committed at Delphi seemed to give him a title to march at the head of an army into Greece. The superstition of the Greeks, however, had not yet blinded them to such a degree but they could perceive that Philip's piety was a mere pretence, and that his real design was to conquer the whole country. The Athenians no sooner heard of the march of the Macedonian army, than they despatched a strong guard to secure the pass of Thermopylæ; so that Philip was obliged to return, greatly chagrined and disappointed. Their next step was to call an assembly to deliberate upon the measures proper to be taken to restrain Philip's ambition; and this assembly is memorable for the first appearance of Demosthenes as an orator against Philip. Athens for some time had been in a very alarming situation. They were deeply involved in the sacred war; their northern possessions were plundered by Philip; while his mercenary partizans drew off the public attention to such a degree, that, instead of taking measures to counteract that ambitious prince, they amused

themselves about the designs of the Persian monarch, who was preparing for war against the Cyprians, Egyptians, and Phœnicians. Isocrates the orator, and Phocion the statesman, joined the multitude, from a sense of the unsteady conduct of the Athenians, who they were sure could not contend with so active a prince as Philip, and therefore exhorted them to cultivate his friendship. Their arguments were violently opposed by Demosthenes, who, in his addresses to the people, exhorted them to awake from their indolence, and assume the direction of their own affairs; to abandon all romantic schemes of ambition; and, instead of carrying their arms into remote countries, to prepare for repelling the attacks which might be made upon their own dominions. He insisted also upon a better regulation of their finances, a more equal distribution of the public burdens, and upon retrenching many superfluous expenses. He told them, that they were not yet prepared to meet Philip in the field; they must begin with protecting Olynthus and the Chersonesus, for which it would be necessary to raise 2000 light armed troops, with a due proportion of cavalry, which ought to be transported to the islands of Lemnos, Thasos, and Sciathos, in the neighbourhood of Macedon. But all his rhetoric could not prevail upon the indolent Athenians to provide for their own safety. They appear, indeed, at this time, to have been sunk in effeminacy and dissipation; which disposition Philip took care to encourage. There was an assembly in the city called the Sixty, who met expressly for the purposes of extinguishing all care about public affairs, and to intoxicate themselves with every kind of pleasure. To this assembly Philip sent money to support their extravagances; and so effectually did they answer his purposes, that all the eloquence of Demosthenes could not counteract the speeches of orators much his inferiors, when backed by Macedonian gold. The destruction of Olynthus soon followed. The city, which held the balance of power betwixt Athens and Macedon, was taken and plundered, and the inhabitants sold for slaves.

Philip's chief hopes now depended on putting an end to the Phocian war. For this purpose he affected a neutrality that he might thereby become the arbiter of Greece. His hopes were well-founded; for the Thebans, who were at the head of the league against the Phocians, solicited him on the one side, and the states confederated with the Phocians did the like on the other. He answered neither, yet held both in dependence. In his heart he favored the Thebans, or rather placed his hopes of favoring his own cause in that state; for he well knew that the Athenians, Spartans, and other states allied with Phocis, would never allow him to pass Thermopylæ, and lead an army into their territories. So much respect, however, did he show to the ambassadors from these states, particularly Ctesiphon and Phrynon, from Athens, that they believed and reported him to be in their interest. The Athenians, therefore, sent ten plenipotentiaries to treat of peace, among whom were Demosthenes and Æschines; but, though they were treated with the utmost civility by Philip, they returned, after three months, without coming to any con-

clusion. In the mean time, he took from the Athenians such places in Thrace as might best cover his frontiers. At last a peace was concluded, but the ratification was deferred till Philip had possessed himself of Pheræ, and saw himself at the head of a numerous army; he then dismissed the plenipotentiaries with assurances that he should be ready at all times to give the Athenians proofs of his friendship. On their return to Athens, Demosthenes gave it as his opinion that the promises of Philip ought not to be relied on. Æschines, however, was of an opposite opinion; the rest of the plenipotentiaries concurred with Æschines; and the people, desirous of quiet, and addicted to pleasure, decreed that the peace should be kept. Philip, while the Athenians were in this humor, passed Thermopylæ, and entered Phocia with an air of triumph; which so terrified the Phocians that they gave up all thoughts of defence, submitted to his mercy, and the judgment on them was remitted to the Amphictyons. Philip paid the most profound respect to the council; and, when he had performed its commands, returned peaceably with his army to Macedon. At Athens alone, the justice and piety of Philip was not understood. They saw, that now the Phocians were destroyed; Philip was master of Thermopylæ, and might enter Greece when he pleased; that, in abandoning their allies, they had abandoned their own interest; and that, in all probability, they might soon feel the weight of his power whom they had so foolishly trusted; they therefore began to take new and hostile measures; to repair their walls and forts, &c. Diopithes, who had the command of the Athenian colonies in Thrace, did not stay for instructions from home; but, having raised with much expedition a considerable body of troops, entered the adjacent territories of Philip, and wasted them with fire and sword. The king, who, on account of the operations of the campaign in the Chersonese, was not at leisure to repel Diopithes by force, contented himself with complaining to the Athenians of Diopithes; but Demosthenes defended him, and moved that, instead of disowning what Diopithes had done, they should send him over recruits, and show the king of Macedon that they knew how to protect their territories and to maintain the dignity of their state. A decree was accordingly made conformable to this motion. While affairs stood thus, the Illyrians recovering courage, and seeing Philip at such a distance, harassed the frontiers of Macedon, and threatened a formidable invasion: but Philip, by quick marches, arrived on the borders of Illyrium, and struck the barbarians with such a panic, that they were glad to compound for their depredations at any price. Most of the Greek cities in Thrace now sought Philip's friendship, and entered into a league with him. About this time the Argives and Messenians, weary of the tyranny of the Spartans, applied to Thebes for assistance; and the Thebans, from their aversion to Sparta, sought to open a passage for Philip into the Peloponnesus, that, in conjunction with them, he might humble the Lacedæmonians. Philip readily accepted the offer, and resolved to procure a decree from the Amphictyons, directing the Lacedæmonians to leave Argos and

Messene free; which, if they complied not with, he, as the lieutenant of the Amphyctyons, might, with great appearance of justice, march with a body of troops to enforce their order. When the Spartans had intelligence of this, they immediately applied to the Athenians, earnestly entreating assistance, as in the common cause of Greece. The Argives and Messenians, on the other hand, labored assiduously to gain the Athenians to their side; alleging that, if they were friends to liberty, they ought to assist those whose only aim it was to be free. Demosthenes, at this juncture, outwrestled Philip, to borrow that king's expression; for, he not only determined his own citizens to become the avowed enemies of the king, but also made the Argives and Messenians afraid of him as an ally; which, when Philip perceived, he laid aside all thoughts of this enterprise for this time. He next turned his arms against Eubœa, and demolished Porthmos. Soon after this he took Oreus; but, the Athenians interfering, Philip thought it prudent to abandon the project, and prosecute his conquests in Thrace, for which he made extraordinary preparations. His son Alexander was left regent, and he himself with 30,000 men laid siege to Perinthus, one of the strongest cities in the country. But he was soon obliged to raise it with great loss, as the inhabitants were assisted not only by the Athenians, but also by the king of Persia, who was now become jealous of the power of the Macedonian monarch. They were likewise assisted by the Byzantines, who considered it their interest to preserve Perinthus for their own security. That the reputation of the Macedonian arms might not sink by this disgrace, Philip made war on the Scythians and Triballi, both of whom he defeated; and then formed a design of invading Attica, to effect which he had recourse to his usual intrigues. He excited the Locrians to insult the Amphyctyons; and when the latter called upon all Greece to avenge their wrongs, and to raise an army for that purpose, the number of troops sent to the rendezvous, for that purpose, was so inconsiderable, that Æschines and his other creatures easily prevailed upon the deputies from the different states to elect Philip their general, with full power to act as he thought fit against such as had opposed the authority of the Amphyctyons. Thus of a sudden Philip acquired all that he sought; and, having an army ready in expectation of this event, he immediately marched to execute the commands of the Amphyctyons in appearance, but in reality to accomplish his own designs. For, having passed into Greece with his army, instead of attacking the Locrians, he seized upon Elatea, a large city of Phocis, upon the Cephissus. The Athenians in the mean time were in the utmost confusion on the news of Philip's march. However, by the advice of Demosthenes, they invited the Thebans to join them against the common enemy of Greece. Philip endeavoured as much as possible to prevent this confederacy from taking place, but all his efforts proved ineffectual. The Athenians raised an army, which marched immediately to Eleusis, where they were joined by the Thebans. An engagement ensued at Cheronœa, wherein

Alexander commanded one wing of the Macedonian army, and his father Philip the other. The confederate army, in the beginning of the battle, had the advantage; but Philip, drawing his men up very close, retired to a neighbouring eminence, whence, when the Athenians were eager in their pursuit, he rushed down with impetuosity, and broke and routed them with prodigious slaughter. This victory decided the fate of Greece; and from this time we may reckon Philip supreme lord of all the Grecian states. The first use he made of his power was to convocate a general assembly, wherein he was recognised generalissimo, and with full power appointed their leader against the Persians. Having settled a general peace among them, and appointed the quota that each state should furnish for the war, he dismissed them; and, returning to Macedon, began to prepare for this new expedition. His pretence for making war on the Persians at this time was the assistance they had formerly given to Perinthus. In the mean time, however, the dissensions which reigned in his family made him miserable. He divorced his wife Olympias, and married another woman, named Cleopatra. This produced a quarrel between him and his son Alexander; which also rose to such a height, that Alexander retired into Epirus with his mother. Some time afterwards, however, he was recalled, and a reconciliation took place in appearance; but in the mean time a conspiracy was formed against the king's life, the circumstances and causes of which are very much unknown. Philip, having given a public audience to the ambassadors of Greece, was proceeding in state to the theatre, when he was stabbed at the door, by one Pausanias; who, endeavoring to escape, was overtaken, but instead of being secured, to discover his accomplices, was killed on the spot. As to the character of Philip, he was certainly one of the greatest monarchs that ever sat on a throne. The history of the reign of ALEXANDER THE GREAT is already noticed under that title.

By the death of Alexander fell the glory of the Macedonians, who very soon relapsed into a situation as bad, or worse, than that in which they had been before the reign of Philip. This was occasioned principally by his not having distinctly named a successor, and having no child come to the years of discretion to whom the kingdom might seem naturally to belong. The ambition and jealousy of his mother Olympias, his queen Roxana, and especially of the great commanders of his army, not only prevented a successor from being ever named, but occasioned the death of every person in the least related to Alexander. To have a just idea of the origin of these disturbances, it is necessary, in the first place, to understand the situation of the Macedonian affairs at the time of Alexander's death. When Alexander set out for Asia, he left Antipater in Macedon, to prevent any disturbances that might arise either there or in Greece. The Greeks, even during the lifetime of Alexander, bore the superiority which he exercised over them with great impatience; and, though nothing could be more mild than the government of Antipater, yet he was exceedingly hated. One of

the last actions of Alexander's life set all Greece in a flame. He had, by an edict, directed all the cities of Greece to recal their exiles; which edict, when published at the Olympic games, created much confusion. Many of the cities were afraid that, when the exiles returned, they would change the government; most of them doubted their own safety if the edict took place; and all of them held this peremptory decree to be a total abolition of their liberty. No sooner, therefore, did the news of Alexander's death arrive than they prepared for war. In Asia the state of things was not much better; not indeed through any inclination of the conquered countries to revolt, but through the dissensions among the commanders. In the general council which was called soon after the death of Alexander, after much confusion and altercation, it was at last agreed, or rather commanded by the soldiers, that Aridæus the brother of Alexander, who had always accompanied the king, and had been wont to sacrifice with him, should assume the sovereignty.—This Aridæus was a man of very weak mind, and for this reason Perdiccas, Ptolemy, and most of the cavalry officers, resented his promotion to such a degree, that they quitted the assembly, and even the city. However Meleager, at the head of the phalanx, vigorously supported their first resolution, and Aridæus was made king by the name of Philip. The Macedonians, besides their regard for the deceased king, soon began to entertain a personal love for Philip III. on account of his moderation. It is remarkable, that notwithstanding all the favors which Alexander had conferred upon his officers, and the fidelity with which they had served him during his life, only two of them were attached to the interests of his family after his death. These were Antipater and Eumenes the Cardian, whom he had appointed his secretary. Antipater, being embroiled with the Greeks, could not assist the royal family, who were in Asia; and Eumenes had not as yet sufficient interest to form a party in their favor. In a short time, however, Perdiccas procured the murder of Meleager; by which means the supreme power for a time fell into his hands. His first step was to distribute the provinces of the empire among the commanders in the following manner, in order to prevent competitors, and to satisfy the ambition of the principal generals of the army. Aridæus, and Alexander the son of Roxana, born after the death of his father, were to reign in Macedon. Antipater had the government of the European provinces. Craterus had the title of protector. Perdiccas was general of the household troops in the room of Hephæstion. Ptolemy Lagus, the natural son of Philip, had Egypt, Libya, and that part of Arabia which borders upon Egypt. Cleomenes, a man of infamous character, whom Alexander had made receiver general in Egypt, was made Ptolemy's deputy. Leonmedon had Syria; Philotas, Cilicia; Pithon, Media; Eumenes, Cappadocia, Paphlagonia, and all the country bordering on the Euxine Sea, as far as Trapezus; but these were not yet conquered, so that he was a governor without a province. Antigonis had Pamphylia, Lycia, and Phrygia Major; Cassander Caria;

Menander, Lydia; Leonatus, Phrygia on the Hellespont. In the mean time not only Alexander's will, but Alexander himself, was so much neglected, that his body was allowed to remain seven days before any notice was taken of it, or any orders given for its being embalmed. The government, in the hands of Perdiccas and Roxana, quickly degenerated. Alexander was scarcely dead when the queen sent for Statira and Drypetis, the two daughters of Darius, the former of whom had been married to Alexander and the latter to Hephæstion; but, as soon as they arrived at Babylon, caused them both to be murdered. Sysigambis, the mother of Darius, no sooner heard that Alexander was dead than she laid violent hands on herself, being apprehensive of the calamities which were about to ensue.

In the year 321 B. C. the Greeks confederated against Antipater, who was defeated, with the army under his command; and Leonatus being sent into Asia with a considerable army, to his assistance, both were overthrown with great loss, and Leonatus killed. Soon after, however, Craterus arrived in Greece with a great army, which, when joined to that of Antipater, amounted to no fewer than 40,000 foot, 3000 archers, and 5000 horse; while that of the confederates amounted only to 3000 horse and 25000 foot. The Greeks were therefore defeated, and forced to sue for peace; which they obtained on condition of their receiving Macedonian garrisons into their chief cities. At Athens also the democratic government was abrogated; and such a dreadful punishment did this seem to the Athenians, that 22,000 of them left their country, and retired into Macedon. Disturbances began also to arise in Asia and Thrace. The Greek mercenaries, dispersed through the inland provinces of Asia, despairing of ever being allowed to return home by fair means, determined to attempt it by force. For this purpose they assembled to the number of 20,000 foot and 3000 horse; but were all cut off by the Macedonians. In Thrace, Lysimachus was attacked by one Seuthus, a prince of that country, who claimed the dominions of his ancestors, and had raised an army of 20,000 foot and 8000 horse. But, though the Macedonian commander was forced to engage this army with only 4000 foot and 2000 horse, yet he kept the field of battle, and could not be driven out of the country. Perdiccas in the mean time, by pretending friendship to the royal family, had gained over Eumenes entirely to his interest; and at last put him in possession of the province of Cappadocia by the defeat of Ariarathes, king of that country, whom he afterwards cruelly caused to be crucified. His ambition, however, now began to lead him into difficulties. At the first division of the provinces, Perdiccas, to strengthen his own authority, had proposed to marry Nicaa the daughter of Antipater; and her two brothers, Jollas and Archias, conducted her to him, in order to be present at the nuptials. But Perdiccas now had different intentions. He had been solicited by Olympias to marry her daughter Cleopatra, the widow of Alexander, king of Epirus, and who then resided at Sardis in Lydia. Eumenes promoted this match to the

atmost of his power, because he thought it would be for the interest of the royal family; and his persuasions had such an effect on Perdiccas, that he was sent to Sardis to compliment Cleopatra, and to carry presents to her in the name of her new lover. In the absence of Eumenes, however, Alcetas, the brother of Perdiccas, persuaded him to marry Nicæa; but, in order to gratify his ambition, he resolved to divorce her immediately after marriage, and marry Cleopatra. By this last marriage he hoped to have a pretence for altering the government of Macedon; and, as a necessary measure preparative to these, he laid plots for destroying Antigonus. But all his schemes were ruined by his own jealousy and precipitate cruelty. Cynane, the daughter of Philip by his second wife, had brought her daughter Adda, afterwards named Eurydice, to court, in hopes that king Aridæus might marry her. Perdiccas, from some political motives, had conceived such an umbrage against Cynane, that he caused her to be murdered. This raised a commotion in the army; which alarmed Perdiccas to such a degree, that he now promoted the match between Aridæus, and Eurydice; to prevent which he had murdered her mother. But in the mean time Antigonus, knowing the designs of Perdiccas against himself, fled with his son Demetrius to Greece, there to take shelter under Antipater and Crateras, whom he informed of the ambition and cruelty of the regent. A civil war was now kindled. Antipater, Crateras, Neoptolemus, and Antigonus, were combined against Perdiccas; and it was the misfortune of the empire in general, that Eumenes, the most able general, as well as the most virtuous of all the commanders, was on the side of Perdiccas, because he believed him to be in the interest of Alexander's family. Ptolemy, in the mean time, remained in quiet possession of Egypt; but without the least intention of owning any person for his superior. However, he acceded to the league formed against Perdiccas; and thus the only person in the whole empire who consulted the interest of the royal family was Eumenes. It was now thought proper to inter the body of Alexander, which had been kept for two years, during all which time preparations had been making for it. Aridæus, to whose care it was committed, set out from Babylon for Damascus, in order to carry the king's body to Egypt. This was much against the will of Perdiccas; for there was a superstitious report, that, wherever the body of Alexander was laid, that country would be most prosperous. Perdiccas, therefore, out of regard to his native soil, would have it conveyed to the royal sepulchres in Macedon; but Aridæus, pleading the late king's express direction, was determined to carry it into Egypt, thence to be conveyed to the temple of Jupiter Ammon. The funeral was accordingly conducted with all imaginable magnificence. Ptolemy came to meet the body as far as Syria; but, instead of burying it in the temple of Jupiter Ammon, erected a stately temple for it in Alexandria; and, by this respect he showed for his dead master, induced many of the Macedonian veterans to join him, who were afterwards of the greatest service to him.

Perdiccas now marched against Ptolemy, but was slain by his own men, who, after the death of their general, submitted to his antagonist; and thus Eumenes was left alone to contend against all the other generals who had served under Alexander. In this contest, however, he would by no means have been over-matched, had his soldiers been attached to him; but, as they had been accustomed to serve under those very generals against whom they were now to fight, they were on all occasions ready to betray and desert Eumenes. However, he defeated and killed Neoptolemus and Craterus, but was still obliged to contend with Antipater and Antigonus. Antipater was now appointed protector of the kings, with sovereign power; and Eumenes was declared a public enemy. A new division of the empire took place. Egypt, Lybia, and the parts adjacent, were given to Ptolemy, because they could not be taken from him. Syria was confirmed to Leomedon; Philoxenus had Cilicia; Mesopotamia and Arbiletus were given to Amphimachus; Babylon was bestowed on Seleucus; Susiana fell to Antigonus, who commanded the Macedonian Argyraspidæ, or Silver Shields, because he was the first who opposed Perdiccas; Peucestas held Persia; Tlepolemus had Caramania; Pithon had Media as far as the Caspian Straits; Stasander had Aria and Drangia; Philip, Parthia; Stasapor, Bactria and Sogdia; Sybirtius, Aracopa; Oxyartes, the father of Roxana, Paropamisus. Another Pithon had the country between this province and India; Porus and Taxiles held what Alexander had given them; Cappadocia was assigned to Nicanor; Phrygia, Major Lyconia, Pamphylia, and Lycia, were given to Antigonus; Caria to Cassander; Lydia to Clytus; Phrygia the Less to Arideus. Cassander was appointed general of the horse; while the command of household troops was given to Antigonus, with orders to prosecute the war against Eumenes. Antipater, having thus settled every thing as well as he could, returned to Macedon with the two kings, to the great joy of his countrymen, having left his son Cassander to be a check upon Antigonus in Asia. Affairs now seemed to wear a better aspect than they had yet done; and, had Eumenes believed that his enemies really consulted the interest of Alexander's family, there is not the least doubt that the war would have been immediately terminated. He saw, however, that the design of Antigonus was only to set up for himself, and therefore he refused to submit. From this time, therefore, the Macedonian empire ceased in Asia; and an account of the transactions of this part of the world will be recorded under the article SYRIA. The Macedonian affairs are now entirely confined to the kingdom of Macedon itself, and to Greece. Antipater had not long been returned to Macedon when he died; and the last action of his life completed the ruin of Alexander's family. Out of a view to the public good, he had appointed Polysperchon, the eldest of Alexander's captains at hand, to be protector and governor of Macedon. This failed not to disgust his son Cassander, who thought he had a natural right to these offices, and of course kindled a new civil

war in Macedon. This was indeed highly promoted by his first actions as governor. He began with attempting to remove all the governors appointed in Greece by Antipater, and to restore democracy wherever it had been abolished. The immediate consequence of this was, that the people refused to obey their magistrates; the governors refused to resign their places, and applied for assistance to Cassander. Polysperchon also had the imprudence to recal Olympias from Epirus, and allow her a share in the administration; which Antipater, and even Alexander himself, had always refused her. The consequence of all this was, that Cassander invaded Greece, where he prevailed against Polysperchon; Olympias returned to Macedon, where she cruelly murdered Aridaeus and his wife Eurydice; she herself was put to death by Cassander, who afterwards caused Roxana and her son to be murdered, and Polysperchon being driven into Etolia, first raised to the crown Hercules the son of Alexander by Statira, and then by the instigation of Cassander murdered him, by which means the line of Alexander the Great became totally extinct. Cassander, having thus destroyed all the royal family, assumed the regal title, as he had for sixteen years before had all the power. He enjoyed the title of king of Macedon only three years; after which he died about 298 B. C. By Thessalonica, the daughter of Philip II., he left three sons, Philip, Antipater, and Alexander. Philip IV. succeeded him, but soon after died of a consumption. A contest immediately began between the two brothers, Antipater and Alexander. Antipater seized the kingdom; and, to secure himself in it, murdered his mother Thessalonica, if not with his own hand, at least the execrable deed was committed in his presence. Alexander invited Pyrrhus king of Epirus, and Demetrius the son of Antigonus, to assist him and revenge the death of his mother. But Pyrrhus being bought off, and a peace concluded between the brothers, Alexander, being afraid of having too many protectors, formed a scheme of getting Demetrius assassinated. Instead of this, however, both he and Antipater, the two last of Alexander's relations, were put to death; and Demetrius became king of Macedon four years after the death of Cassander.

In 287 B. C. Demetrius was driven out by Pyrrhus, who was again driven out by Lisimachus two years after, who was soon after killed by Seleucus Nicator; and Seleucus, in his turn, was murdered by Ptolemy Ceraunus, who became king of Macedon about 280 B. C. The new king was in a short time cut off, with his whole army, by the Gauls; and Antigonus Gonatus, the son of Demetrius Poliorcetes, became king of Macedon in 278 B. C. He proved successful against the Gauls, but was driven out by Pyrrhus, king of Epirus; who, however, soon provoked his subjects to such a degree, that Antigonus recovered a great part of his kingdom. In a little time, Pyrrhus being killed at the siege of Argos, Antigonus was restored to the whole of Macedon; but scarcely was he seated on the throne, when he was driven from it by Alexander the son of Pyrrhus. This new invader was, in

his turn, expelled by Demetrius the son of Antigonus, who, though at that time but a boy, had made himself almost master of Epirus. By a stratagem he made himself master of the city of Corinth, and from that time began to form schemes for the thorough conquest of Greece. The method he took to accomplish this was, to support the petty tyrants of Greece against the free states; which indeed weakened the power of the latter, but involved the whole country in many calamities. About 243 B. C. he died, leaving the kingdom to his son Demetrius II. Neither Demetrius, nor his successor Antigonus Doson, performed any thing remarkable. In 221 B. C. the kingdom fell to Philip V. the son of Antigonus III. To him Hannibal applied for assistance after the battle of Cannæ, which he refused; and the same imprudence which made him refuse this assistance, prompted him to embroil himself with the Romans; and at last to conclude a treaty with them, by which he in effect became their subject, being prevented from making peace or war but according to their pleasure. In 179 B. C. he was succeeded by his eldest son Perseus, or Perseus, under whom the war with the Romans was renewed. The Macedonians were still terrible in war, and their phalanx, when properly conducted, seems to have been almost invincible by any method of making war then known. The Romans had never encountered such a terrible enemy; and in the first battle, which happened 171 B. C., they were defeated with the loss of 2200 men, while the Macedonians lost only sixty. The generals of Perseus now pressed him to storm the enemy's camp; but he being naturally of a cowardly disposition refused to comply, and thus lost his opportunity. Still, however, the Romans gained little or no advantage, till the year 168 B. C. when Paulus Æmilius, a most experienced commander, was sent into Macedon. Perseus now put all upon the issue of a general engagement; and Æmilius, with all his courage and experience, would have been defeated, had the Macedonians been commanded by a general of any courage or conduct. The light armed Macedonians charged with such vigor, that after the battle some of their bodies were found within two furlongs of the Roman camp. When the phalanx came to charge, the points of their spears, striking into the Roman shields, kept the heavy armed troops from moving; while, on the other hand, Perseus's light armed men did terrible execution. Æmilius was ready to give up all hopes, when perceiving, that, as the phalanx gained ground it lost its order in several places, he caused his own light-armed troops to charge in those places, whereby the Macedonians were put into confusion. Perseus fled with his horse, and the infantry at last did the same, but not till 20,000 of them had lost their lives. This battle decided the fate of Macedonia, which immediately submitted. The cowardly Perseus took refuge in the island of Samothrace, but was at last obliged to surrender to the Roman consul, by whom he was carried to Rome, led in triumph, and afterwards most barbarously used. Some pretenders to the throne appeared afterwards; but, being unable to defend themselves against the Romans, the country was

reduced to a Roman province in 148 B. C. To them it continued subject till A. D. 1375, when it was reduced by the Turkish sultan Baazet I. See TURKEY and GREECE.

MACEDONIANS, in ecclesiastical history, the followers of Macedonius, patriarch of Constantinople, who, through the influence of the Eunomians, was deposed by the council of Constantinople in 360, and sent into exile. He considered the Holy Ghost as a divine energy diffused throughout the universe, and not as distinct from the Father and the Son. The sect of Macedonians was crushed before it had arrived at its full maturity, by the council assembled by Theodosius in 381, at Constantinople.

MACER (Æmilius), an ancient Latin poet, born at Verona, who flourished under Augustus Cæsar; Eusebius relates that he died a few years after Virgil. Ovid speaks of a poem of his, on the nature and quality of birds, serpents, and herbs. There is extant a poem upon the nature and power of herbs under Macer's name; but it is spurious. He also wrote a supplement to Homer, as Quintus Calaber did afterwards in Greek.

MACERATA, a town and delegation of Italy, in the states of the church. It is situated at the top of a beautiful hill, contiguous to the river Chienti; and the place is said to be noted for its superior society. Here are a university, founded in the end of the thirteenth century, a Jesuits' college, two academies, and a public school. It is likewise the see of a bishop. Population 10,000. Twenty miles south of Ancona, and 100 N. N. E. of Rome.

MACERATE, *v. a.* } *Fr. macerer; Lat. macerare.*
MACERATION. } *cero.* To steep; infuse;
 soak; exhaust; make lean.

Covetous men are all fools: for what greater folly can there be, or madness, than for such a man to *macerate* himself when he need not?

Burton on Melancholy.

Recurrent pains of the stomach, megrims, and other recurrent head-aches, *macerate* the parts, and render the looks of patients consumptive and pining.

Harvey on Consumptions.

The saliva serves for a *maceration* and dissolution of the meat into a chyle. *Ray on the Creation.*

Out of an excess of zeal they practise mortifications; they *macerate* their bodies, and impair their health.

Fiddes.

In lotions, in women's cases, he orders two portions of hellebore *macerated* in two cotylæ of water.

Arbutnot.

Maceration is the steeping of a solid body in a fluid in order to soften it, without impregnating the fluid.

Purkes's Chemical Catechism.

MACHERUS, in ancient geography, a citadel on the other side Jordan, near the mountains of Moab near the lake Asphaltites, on the north side. It was the south boundary of the Peræa, situated on a mountain encompassed round with deep and broad valleys; built by Alexander, king of the Jews, destroyed by Gabinius in the war with Aristobulus, and rebuilt by Herod with a cognominal town round it. Here John the Baptist was beheaded.

HALA, a town of South America, in the province of Quito. The environs produce reckoned the best in all Guyaquil; and

mangrove-trees, whose branches and thick trunks seem to cover the plains; which are frequently overflowed. The wood of the mangrove, when used in ships, &c., is very durable, being subject neither to split nor rot. Fifty-five miles N. N. W. of Loxa. Long. 79. W.

MACHAON, a celebrated physician among the ancients, son of Æsculapius, and brother to Podalirius. He went to the Trojan war, with the inhabitants of Trica, Ithome, and Cephallia. According to some, he was king of Messenia. He was physician to the Greeks during the Trojan war. Some say he was killed before Troy, by Eurypius, the son of Telephus. He received divine honors after death, and had a temple in Messenia.

MACHIAVEL (Nicholas), a famous political writer of the sixteenth century, of a distinguished family at Florence. He wrote in his native language with great elegance and politeness, though he understood very little Latin. He composed a comedy upon the ancient Greek model; in which he satirised many of the Florentine ladies, and which was so well received that pope Leo X. caused it to be acted at Rome. He was secretary, and afterwards historiographer, to the republic of Florence. The house of Medici procured him this last office, with a handsome salary, to pacify his resentment for having suffered the torture upon suspicion of being an accomplice in the conspiracy of the Soderini against that house, when Machiavel bore his sufferings heroically without making any confession. He was also strongly suspected of being in another conspiracy against cardinal J. de Medici, afterwards pope by the name of Clement VII. However, they carried on proceedings against him; but from that turned every thing into ridicule, and got up to irreligion. He died in 1530. His writings, the most celebrated is a political treatise entitled the Prince; which has been translated into several languages, and written by many authors. The world is not agreeable to his motives in writing this work; so he meant to recommend tyrannical measures; others think he only delineated them to excite horror. He also wrote Reflections on Titus Livius, which are curious; The History of Florence, from 1205 to 1494; and a 4to. volume of poems, &c.

MACHINE, *n. s.* } *Fr. machine, machiner,*
MACHINATE, *v. a.* } *Lat. machina, machinor;*
MACHINATION, *n. s.* } *Gr. μηχανή.* An engine;
MACHINERY, } a compound of mecha-
MACHINIST. } nical contrivances: to
 machinate is, to plan; contrive: machination, the contrivance, scheme, or plan; often applied to bad plans or schemes: machinery, mechanical workmanship: machinist, the contriver or constructor of such workmanship.

O from their machinations free,
 That would my guilty soul betray:
 From those who in my wrongs agree,
 And for my life their engines lay

Sandys.

If you macarry,
 Your business of the world hath so an end,
 And machination ceases

Macbeth. Macduff. King Lear

Be frustrate, all ye stratagems of hell ;
And devilish *machinations*, come to nought.

Milton.

In the hollow side,
Selected numbers of their soldiers hide ;
With inward arms the dire *machines* they load,
And iron bowels stuff the dark abode.

Dryden.

In a watch's fine *machine*,
The added movements which declare
How full the moon, how old the year,
Derive their secondary power
From that which simply points the hour.

Prior.

The marvellous fable includes whatever is supernatural, and especially the *machines* of the gods.

Pope.

MACHINE, in general, signifies any thing that serves to augment or to regulate moving powers : or it is any body destined to produce motion, so as to save either time or force. The word comes from the Greek *μαχανη*, invention or art : and hence, in strictness, a machine is something that consists more in art and invention than in the strength and solidity of the materials. Machines are either simple or compound. The simple ones are the seven mechanical powers, viz. lever, balance, pulley, axis and wheel, wedge, screw, and inclined plane. See MECHANICS. From these the compound ones are formed by various combinations, and serve for different purposes. See MACHINERY.

MACHINES USED IN WAR, amongst the Greeks, were principally these : 1. *Κλίμακες*, or scaling ladders ; 2. The battering ram ; 3. The *helepolis* ; 4. The *χελωνη*, or tortoise, called by the Romans *testudo* ; 5. The *χωμα*, or agger, which was faced with stone, and raised higher than the wall ; 6. Upon the *χωμα* were built *πύργοι*, or towers of wood ; 7. *Επύραι*, or osier hurdles ; 8. *Catapultæ* or *καταπαλταί*, from which they threw arrows with amazing force ; and, 9. The *λιθοβολοί*, *πετροβολοί*, or *απετηρία* ; from which stones were cast with great velocity. The principal warlike machines made use of by the Romans were the ram, the lupus or wolf, the *testudo* or tortoise, the balista, the catapulta, and the scorpion.

MACHINERY, in epic and dramatic poetry, is when the poet brings some supernatural being upon the stage, to solve some difficulty, or perform some exploit out of the reach of human power. The ancient dramatic poets never made use of machines, unless where there was an absolute necessity for so doing : whence the precept of Horace ;

*Nec Deus interit, nisi dignus vindice nodus
Inciderit.*

It is quite otherwise with epic poets, who introduce them in every part of their poems. In Milton's *Paradise Lost* the greater part of the actors are supernatural personages : Homer and Virgil perform nothing without them ; and, in Voltaire's *Henriade*, the poet has made excellent use of St. Lewis.

MACHUL, an instrument of music among the Hebrews. Kircher apprehends that the name was given to two kinds of instruments, one of the stringed and the other of the pulsatile kind. That of the former sort had six chords ; though there is great reason to doubt whether an

instrument requiring the aid of the hair-bow, and so much resembling the violin, be so ancient. The latter was of a circular form, made of metal, and either hung round with little bells, or furnished with iron rings suspended on a rod or bar that passed across the circle. Kircher supposes that it was moved to and fro by a handle fixed to it, and thus emitted a melancholy kind of murmur.

MACHYNLETH, an ancient market-town of North Wales in Montgomeryshire, 200 miles from London, and thirty from Montgomery. It has a market on Monday, and fairs. It is seated on the Douay, over which there is a large stone bridge, leading into Merionethshire. Here Owen Glyndower exercised the first acts of his royalty in 1402 ; here he accepted the crown of Wales, and assembled a parliament ; and the house wherein they met remains, but is divided into tenements. The town-hall is a plain building ; and here is a grammar-school. A considerable tanning business is carried on, and also the manufactures of flannels and cottons.

MACK (Charles, baron Von), an Austrian general, famous only for his defeats, was born in Franconia in 1752. He was well educated ; but, on leaving college, enlisted as a private in a regiment of dragoons. In the war with Turkey he was noticed by marshal Lascy, who gave him a commission. The spirit of enterprise which he now displayed procured him the favor of Laudohn, who made him his aide-de-camp, and recommended him to the emperor. On the war with France, Mack was appointed quartermaster-general of the army of the prince of Cobourg, and directed the campaign of 1793. He was afterwards employed in negotiating with Dumouriez. He again served under the prince of Cobourg in the Netherlands ; and in 1797 succeeded the archduke Charles in the command of the army of the Rhine. The following year he was sent to Naples, and boasted that he would soon drive the enemy out of Italy ; but being beaten, and suspected of treason by the Neapolitans, he fled to the French camp, and was sent prisoner to Dijon. He was afterwards removed to Paris on parole, and in April, 1800, made his escape to Vienna. Finding means to justify his conduct, he was in 1804 constituted commander-in-chief in the Tyrol, Dalmatia, and Italy. In 1805 he was opposed to Buonaparte, who forced him to retreat beyond the Danube, and to submit to the famous capitulation of Ulm, by which 28,000 Austrians became prisoners. Mack was permitted to go to Vienna, where he was tried before a military tribunal, and received the sentence of death. His doom, however, was commuted by the emperor for imprisonment ; and he was, after a time, released, and died in obscurity.

MACKENZIE (Sir George), of Roystoun, F.R.S., first earl of Cromarty, was born in 1630. His father dying in 1654, he raised some troops and joined lord Middleton, to attempt the restoration of king Charles II., but being defeated by colonel Morgan, he made an honorable capitulation. After the restoration he was employed in several public offices. In 1678 he was appointed lord justice general ; in 1681 he

was made a lord of session, and lord register. He now purchased Roystoun, and continued to have the chief rule in Scotland, during the reigns of Charles II. and James II., by whom, in 1685, he was created lord viscount Tarbat; but by his arbitrary proceedings, rendered himself very unpopular; notwithstanding which, he was, in 1692, restored by William III. to his office of lord register. In 1693 he resigned upon a pension of £400 a year; but upon queen Anne's accession he was appointed secretary of state; and, in 1703, created earl of Cromarty. In 1704 he resigned, and was made lord justice general, which he held till 1710. He died at New Tarbat on the 17th of August, 1714. He was an original and useful member of the Royal Society, and wrote many valuable papers in the Philosophical Transactions. He also published, 1. A Vindication of King Robert III., Edinburgh, 4to. 1695; 2. and 3. Two Letters on the Union; 4. A short Explication of Daniel's Prophecy, and St. John's Revelation, Edinburgh, 1706, 4to.; 5. Historical Account of the Conspiracy of the Earl of Gowrie and R. Logan of Restalrig, against James VI., Edinburgh, 1713, 8vo.; and some other tracts.

MACKENZIE'S RIVER, a river of North America, issuing out of Hlum Lake, and emptying itself into the Frozen Ocean in lat. 70° N., and long. 135° W.

MACK'EREL, *n. s.* } *Fr. maqueriau*; Belg.

MACK'EREL-GALE. } *mackerel*; Teut. *mackerell*; all perhaps of Lat. *macula*, a spot. A well known spotted fish: mackerel-gale, a hard gale, such as brings mackerel.

Some fish are gutted, split, and kept in pickle; as whiting and mackerel. *Curew's Survey of Cornwall.*

Law ordered that the Sunday should have rest; And that no nymph her noisy food should sell, Except it were new milk or mackerel.

King's Cook.

They put up every sail,

The wind was fair, but blew a mackerel-gale.

Dryden.

Sooner shall cats disport in water clear,

And speckled mackerels graze the meadows fair,

Than I forget my shepherd's wonted love.

Gay.

I am living fast to see the time when a book that misses its tide shall be neglected, as the moon by day, or like mackerel a week after the season.

Swift.

MACKEY (John), employed by the government as a spy upon James II., after the revolution, was author of Memoirs of James's court at St. Germaine, and of the court of England in the reigns of William III., and queen Anne, in which are many curious anecdotes not to be met with in any other work. He died in 1726.

MACKINTOSH (Sir James), a British statesman and historical writer. He was born at Aldrowrie in Invernesshire, in Scotland, on the 24th of October, 1765; at the school of Fortrose he exhibited talents of a superior order, and was, in consequence, removed to King's College, Aberdeen. Here he contracted a friendship with Robert Hall, that influenced his college studies as well as his future destinies. From college he proceeded to Edinburgh, where in 1787 he graduated in medicine, although it does not appear

that he ever meant seriously to pursue that profession. He now appeared as author of a pamphlet on the Regency Question: next he produced his *Vindicie Gallicæ*, a reply to Burke's letter on the French Revolution. In 1792, he entered himself at Lincoln's Inn, where he soon distinguished himself by a course of lectures which he delivered upon the Law of Nations. In 1803, he attained a still further addition to his fame by his defence of the author of a libel upon Buonaparte, and was almost immediately promoted to the Recordership of Bombay. Upon his return to England, after an absence of nine years, he was elected to parliament for the county of Nairn, and his ardour and genius were there chiefly directed to the reformation of the Criminal Code, a task bequeathed by his eminent but unfortunate friend Sir Samuel Romilly. Sir James was known as a contributor to the Edinburgh and other Reviews: his discourses on the Laws of England were much esteemed; but his last work, a History of England, is incomplete. He died at the age of 69, on the 30th of May, 1832.

MACLIN (Charles), a celebrated actor and dramatic writer, born in the north of Ireland in 1698. His original name was MacLaughlin. He became a performer in Lincoln's Inn company in 1785; and not long after was tried for killing a brother comedian in a quarrel, and found guilty of manslaughter. His features were so extremely harsh, that Quin rather profanely said of him, 'If God writes a legible hand, that fellow's a villain.' He was, notwithstanding this, a man of humanity and extensive liberality. He wrote two plays, which are esteemed, viz. *Love a-la-mode*, and *The Man of the World*. He died in 1797. His principal character was Shylock, which he performed with so much perfection, that Pope said of him,

This is the Jew—that Shakspeare drew.

MACKNIGHT (James), D.D., a learned clergyman of the church of Scotland, one of the ministers of Edinburgh, and author of several valuable works on theology. In 1772 he was appointed minister of lady Yester's church; and in 1779 one of the ministers of the old church, Edinburgh. He published, 1. *The Harmony of the Four Gospels*, in 4to. 1756; 2. *The Truth of the Gospel History*, 1763; 3. *Translation of, and Commentary on, the Epistles*, 1787. He died January 13th, 1800.

MACLAURIN (Colin), F.R.S., an eminent mathematician and philosopher, was the son of a clergyman, and born at Kilmoddan in Scotland in 1698. He was sent to the university of Glasgow in 1709, where he studied five years. His great talents for mathematics appeared so early as at twelve years of age; when, having accidentally met with an Euclid, he became in a few days master of the first six books without assistance: and in his sixteenth year he had invented many of the propositions afterwards published under the title of *Geometria Organica*. In his fifteenth year he took the degree of M.A., when he composed and defended a thesis *On the Power of Gravity*, with great applause. After this he retired to a country seat of his uncle, where he spent two or three years, as his parents were

dead. In 1717 he stood candidate for the professorship of mathematics in the Marischal College of Aberdeen, and obtained it after a ten days' contest with a very able competitor. In 1719 he went to London, where he became acquainted with Dr. Hoadly, then bishop of Bangor, Dr. Clarke, Sir Isaac Newton, and other eminent men, and was admitted F.R.S. In another journey, in 1721, he contracted an intimacy with Martin Folkes, esq. P.R.S. which lasted to his death. In 1722 lord Polwarth, plenipotentiary to the congress of Cambray, engaged him as a tutor and companion to his eldest son, on his travels. After a short stay at Paris, and visiting other towns in France, they fixed in Lorraine; where Maclaurin wrote his piece On the Percussion of Bodies, which gained the prize of the Royal Academy of Sciences for 1724. But his pupil dying soon after, at Montpelier, he returned immediately to Aberdeen, where he was hardly settled when he received an invitation to Edinburgh, to supply the place of Mr. James Gregory. He had here many difficulties to encounter, arising from competitors, which, however, were all surmounted, partly by the assistance of Sir Isaac Newton; and, in November 1725, he was introduced into the university. In 1733 he married Anne, daughter of solicitor Stewart, by whom he had seven children, of whom five survived him. In 1734 Berkeley, bishop of Cloyne, published a piece called *The Analyst*; in which he took occasion, from some disputes that had arisen concerning the grounds of the fluxionary method, to explode the method itself, and to charge mathematicians in general with infidelity in religion. Maclaurin thought himself included in this charge, and began an answer to Berkeley's book; but, as he proceeded, so many new theories and problems occurred to him, that, instead of a vindictory pamphlet, he published *A Complete System of Fluxions*, with their Application to the most Considerable Problems in Geometry and Natural Philosophy; Edinburgh, in 1742, 2 vols. 4to. He also published many useful tracts in the fifth and sixth volumes of the *Medical Essays*, in Edinburgh; as well as in the *Philosophical Transactions*. In the midst of these studies, he was ready to lend his assistance in promoting any scheme for the service of his country. Under his direction the geography of the Orkney and Shetland Islands was first accurately ascertained in 1739. In 1745, having been very active in fortifying the city of Edinburgh against the rebel army, he was obliged to fly to the north of England; where he was invited by archbishop Herring to reside with him during his stay; but, being in this expedition exposed to cold and hardships, he contracted an illness which put an end to his life, in June 1746, at the age of forty-eight. On various occasions Maclaurin served his friends and his country by his great skill. Frequent disputes having arisen concerning the gauging of vessels, he presented to the commissioners of excise two elaborate memorials, with their demonstrations. He made also calculations relating to the provisions established by law for the children and widows of the Scottish clergy, and of the professors of the uni-

versities, entitling them to certain annuities, upon the voluntary annual payment of a certain sum by the incumbent. He gained the prize of the Royal Academy of Sciences in 1724; and in 1740 the academy adjudged him a prize, for solving the motion of the tides from the theory of gravity; a question which had been given out the former year without receiving any solution. He had only ten days to draw up this paper. He afterwards revised the whole, and inserted it in his *Treatise of Fluxions*; as he did also the substance of the former piece. After his death two volumes more appeared; his *Algebra*, and his *Account of Sir Isaac Newton's Philosophical Discoveries*.

MACON, an ancient post-town, the chief place of the department of the Saône et Loire in France. It has civil and commercial tribunals, a philosophical society, and one for the arts and belles lettres; with 10,411 inhabitants. This town is situated in a very pleasant and fertile country on the right bank of the Saône, at the foot of a hill, but is very irregularly built, and with narrow streets: it is, however, daily improving by the addition of modern buildings. Since the demolition of its walls it has been surrounded with agreeable walks. The quays are remarkable, as well as a bridge of thirteen arches over the Saône said to have been built in the time of Cæsar. Its origin goes farther back than the conquest of Gaul; the Romans established magazines in it and fortified it. It once belonged to the Burgundians, and then passed into the hands of the successors of Clovis. It is the native country of Dombay, the celebrated botanist. The manufactures are woollen counterpanes, linens, hats, and dried confectionary; there are also some iron foundries. It carries on a considerable trade in Burgundy wines, corn, flour, hoops, timber, &c. Among its public buildings may be mentioned the town-hall, the baths, the triumphal arch, the ruins of the temple of Janus, and the ancient bishop's palace. It is about 300 miles south-east of Paris.

MACPHERSON (James), esq. M.P., a Scottish writer of considerable celebrity, born in 1737. His first and most celebrated work was *A Translation of Ossian's Poems*; the authenticity of which was attacked by Dr. Johnson and others, and their merit ascribed to Macpherson himself; who wrote a threatening letter to the doctor, which he answered in terms equally indignant. See OSSIAN. In 1773 he published a translation of the *Iliad* into heroic prose. He also wrote *A History of Great Britain from 1660 to the accession of the house of Hanover*, in 2 vols. 4to.; and an *Introduction to the History of Great Britain and Ireland*. He published likewise some pamphlets in defence of lord North's administration, on whose side he voted in the house of commons. He died in February 1796, aged fifty-nine.

MACQUARRIE ISLAND, an island of the South Pacific Ocean, discovered in 1811, by some resolute seal-fishers from New Holland. It is eighteen miles in length, from north to south, and about six in breadth. At the distance of eight leagues other smaller islands were discovered, which were called the Judge and his

Clerks; and several others in a south direction, which were called the Bishop and his Clerks. The first adventurers killed not fewer than 80,000 seals here. Long. 169° E., lat. 52° 41' S.

MACQUER (Peter Joseph), was born in Paris, 9th of October, 1718. He was descended from a respectable family, and was a member of the Academy of Sciences, and professor of pharmacy. He was engaged in the *Journal des Sçavans* for the articles medicine and chemistry, and had a share in the *Pharmacopœia Parisiensis*, published in 1758, in 4to. His other works are, 1. *Elemens de Chimie Theorique*; Paris, 1749, 1753, 12mo.; which have been translated into English and German. 2. *Elemens de Chimie Pratique*, 1751, 2 vols. 12mo. These two works were re-published together, in 1756, in 3 vols. 12mo. 3. *Plan d'un Cours de Chimie Experimentale et raisonnée*, 1757, 12mo.; in which he was associated with M. Beaumé. 4. *Formulæ Medicamentorum Magistralium*, 1763. 5. *L'Art de la Teinture en Soie*, 1763. 6. *Dictionnaire de Chimie, contenant la Theorie et la Pratique de cet art*, 1766, 2 vols. 8vo.; which has been translated into German with notes, and into English with notes, by Mr. Keir. Macquer, by his labors and writings, contributed very much to the improvement of chemistry. He died at Paris, February 16th, 1784.

MACQUER (Philip), brother to the above, was born in Paris, 1720, and became advocate of the parliament of Paris. A weakness in his lungs having prevented him from pleading, he dedicated himself to literary pursuits. His works are, 1. *L'Abregé Chronologique de l'Histoire Ecclesiastique*, 3 vols. 8vo. 2. *Les Annales Romaines*, 1756, 8vo.: a very judicious compilation. 3. *Abregé Chronologique de l'Histoire d'Espagne et de Portugal*, 1765; 2 vols. 8vo. He died on the 27th of January 1770, aged fifty. He had also a share in the Dictionary of Arts and Professions, 2 vols. 8vo., and the Translation of the Syphilis of Fracastor, published by Lacombe.

MACRINUS, one of the best Latin poets of the sixteenth century, was born at Loudon. His real name was John Salmon; but he took that of Macrin, from his being frequently so called in ridicule by Francis I. on account of his extraordinary leanness. He was preceptor to Claudius of Savoy, count Tende; and to Honorius, the count's brother; and wrote several pieces of poetry in lyric verse, which were so admired, that he was called the Horace of his time. He died of old age, at Loudon, in 1555.

MACROBII, from *μακρος βος*, long life. 1. A people of Ethiopia, celebrated for their justice and the innocence of their manners, as well as for their uncommon longevity. See **ETHIOPIA**. 2. A people in the island of Meroë. 3. The Hyperboreans were also called Macrobi.

MACROBIUS (Ambrosius Aurelius Theodosius), an ancient Latin writer who flourished about the end of the fourth century. His country and religion are uncertain. Erasmus, in his Ciceronianus, seems to think he was a Greek; and he himself tells us, in the preface to his *Saturnalia*, that he was not a Roman, but labored under the inconvenience of writing in a language

which was not natural to him. Barthius reckons him a Christian; but Spanheim and Fabricius suppose him to have been a pagan. It is however certain that he was of consular dignity, and one of the chamberlains to Theodosius. He wrote a commentary upon Cicero's *Somnium Scipionis*, and seven books of *Saturnalia*, which treat of various subjects, and are an agreeable mixture of criticism and antiquarian research. He made great use of other works, borrowing not only their materials, but even their language, for which he makes an apology at the commencement of his work. 'I shall here,' says he, 'imitate the bees, who suck the best juices from all sorts of flowers, and afterwards work them up into various forms and orders, with some mixture of their own proper spirit.' The *Somnium Scipionis* and *Saturnalia* have been often printed to which has been added, in the later editions, a piece entitled *De Differentiis et Societatibus Græci Verbi*.

MACROCEPHALUS, from *μακρος*, great, and *κεφαλη*, head, denotes a person with a head larger or longer than the common size. Macrocephali is a name given to a certain nation who, according to the accounts of authors, were famous for the unseemly length of their heads, yet custom so far habituated them to it that, instead of looking on it as a deformity, they esteemed it a beauty, and, as soon as the child was born, moulded and fashioned its head to as great a length as possible, and afterwards used rollers and bandages for the same purpose.

MACROCENMUM, in botany, a genus of the monogynia order, and pentandria class of plants; natural order thirtieth, contortæ.

MACRATON, Latin *mactatio*, was performed either by the priest himself, or some of his inferior officers, called *popæ*, *agones*, *cultuarii*, and *victimarii*; but, before the beast was killed, the priest turning himself to the east, drew a crooked line with his knife from the forehead to the tail. Among the Greeks this ceremony was performed most commonly by the priest, or in his absence by the most honorable person present. If the sacrifice was offered to the celestial gods, the victim's throat was bent upwards towards heaven; if to the infernal, or to heroes, it was killed with its throat towards the ground. The manner of killing the animal was by a stroke on the head, and, after it was fallen, thrusting a knife into its throat. Good or ill success was predicted from the struggles of the beast, or its quiet submission to the blow, from the flowing of the blood, and the length of time it lived after the fall, &c.

MAC'ULA, *n. s.* } Lat. *macula*. A spot;
MAC'ULATE, *v. a.* } to stain, or mark with
MACULATION. } spots.

I will throw my glove to death himself,
That there's no *maculation* in thy heart.

Shakspeare.

And lastly, the body of the sun may contract some spots or *maculae* greater than usual, and by that means be darkened.

Burner's Theory of the Earth.

MACULE, in astronomy, dark spots appearing on the luminous surfaces of the sun and moon, and even some of the planets. See **ASTRONOMY**.

MAD, *adj.*, *v. a.* & *v. n.* Sax. *maad*, *gemaad*;
MAD'BRAIN, *adj.* Modern Goth. *mod*;
MAD'BRAINED, (Goth. *meida*, to di-
MAD'CAP, *n. s.* vide?) Distracted or
MAD'DEN, *v. n.*, &c. -disordered in mind;
MAD'HOUSE, *n. s.* deranged; lunatic;
MAD'LY, *adv.* hence, enraged; fu-
MAD'MAN, *n. s.* rious; violently af-
MAD'NESS. fected with desire,

taking *on*, *after*, *of*, or *for*, before the object:
 to mad is to make or be furious; make or be
 mad: mad-brain and mad-brained, disordered
 or distracted; hot-headed: madcap (taking the
 cap for the head) a madman: to madden, to be-
 come or behave as deranged. The other deri-
 vatives seem obvious in their meaning.

And many of hem seiden, he hath a deuel, and
maddith. *Wiel.* *Jon.* 10.

It is the land of graven images, and they are *mad*
upon their idols. *Jer.* i. 38.

They shall be like *madmen*, sparing none, but still
 sporting. *2 Esdr.* xvi. 71.

Richesse a robe of purple on had,
 No trowe not that I lie or *mad*,
 For in this world is none it liche,
 Ne by a thousand dele so riche.

Chaucer. Cant. Tales.

O villain! cried out Zelmane, *madd*d with finding
 an unlooked-for rival. *Sidney.*

Alack, sir, he is *mad*.

—'Tis the time's plague when *madmen* lead the blind.
Shakspeare.

This will witness outwardly,
 As strongly as the conscience does within,
 To the *madding* of her lord. *Id. Cymbeline.*

I give my hand opposed against my heart,
 Unto a *madbrain* rudesby, full of spleen.

Shakspeare.

He let fall his book,
 And, as he stooped again to take it up,
 This *madbrained* bridegroom took him such a cuff,
 That down fell priest and book. *Id.*

The nimble-footed *madcap* prince of Wales,
 And his comrades, that daft the world aside,
 And bid it pass. *Id. Henry IV.*

The power of God sets bounds to the raging of the
 sea, and restrains the *madness* of the people.

King Charles.

Holy writ represents St. Paul as making havock
 of the church, and persecuting that way unto the
 death, and being exceedingly *mad* against them.

Decay of Piety.

We must bind our passions in chains, lest, like
mad folks, they break their locks and bolts, and do
 all the mischief they can.

Taylor's Worthy Communicant.

Cupid, of thee the poets sung,
 Thy mother from the sea was sprung;
 But they were *mad* to make thee young. *Denham.*

His gestures fierce

He marked, and *mad* demeanour when alone.

Milton.

The *madding* wheels
 Of brazen chariots rag'd: dire was the noise
 Of conflicts! *Id. Paradise Lost.*

Madmen ought not to be *mad*;

But who can help his frenzy?

Dryden's Spanish Friar.

The world is running *mad* after farce, the ex-
 tremity of bad poetry, or rather the judgment that
 is fallen upon dramatic writing. *Dryden.*

This *mad*s me, that perhaps ignoble hands
 Have overlaid him, for they could not *conquer*. *Id.*

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She, mixing with a throng
 Of *madding* matrons, bears the bride along. *Id.*

He waved a torch aloft, and *madly* vain,
 Sought godlike worship from a servile train. *Id.*

He raved with all the *madness* of despair,
 He roared, he beat his breast, and tore his hair.
Id.

A bear, enraged at the stinging of a bee, ran like
mad into the bee-garden, and overturned all the
 hives. *L'Estrange.*

A fellow in a *madhouse* being asked how he came
 there? Why, says he, the *mad* folks abroad are too
 many for us, and so they have mastered all the sober
 people, and cooped them up here. *Id.*

He that eagerly pursues any thing, is no better
 than a *madman*. *Id.*

There are degrees of *madness* as of folly, the dis-
 orderly jumbling ideas together, in some more, some
 less. *Locke.*

The people are not so very *mad* of acorns, but
 that they could be content to eat the bread of civil
 persons. *Rymer.*

Delusive ideas are the motives of the greatest part
 of mankind, and a heated imagination the power by
 which their actions are incited: the world, in the
 eye of a philosopher, may be said to be a large *mad-*
house. *Mackenzie.*

He who ties a *madman's* hands, or takes away his
 sword, loves his person while he disarms his frenzy.
South.

But some strange graces and odd flights she had,
 Was just not ugly, and was just not *mad*. *Pope.*

The dog-star rages, nay, 'tis past a doubt,
 All Bedlam or Parnassus is let out;
 Fire in each eye, and papers in each hand,
 They rave, recite, and *madden* round the land.
Id.

Such *mad'd'ning* draughts of beauty,
 As for a while o'erwhelm'd his raptured thought.

Thomson.

As a man inebriated only by vapours, soon re-
 covers in the open air, a nation discontented to *mad-*
ness, without any adequate cause, will return to its
 wits and allegiance, when a little pause has cooled it
 to reflection. *Johnson.*

A crowd gather round a dog suspected of *mad-*
ness, and they begin by teasing the devoted animal
 on every side; if he attempts to stand upon the de-
 fensive, and bite; then he is unanimously found guilty,
 for a *mad-dog* always snaps at every thing; if, on
 the contrary, he strives to escape by running away,
 then he can expect no compassion, for *mad* dogs
 always run straight forward before them.

Goldsmith.

Goading the wise to *madness*; from the dull
 Shaping out oracles to rule the world
 Afresh, for they were waxing out of date,
 And mortals dared to ponder for themselves,
 To weigh kings in the balance, and to speak
 Of freedom, the forbidden fruit. *Byron.*

MAD, *n. s.* Sax. *maðu*. An earth worm.

MADAGASCAR (or **MADAGASSE**, a native
 name). Madagascar seems first to have been
 made vaguely known to Europeans by Marco
 Paulo, who received some information respecting
 it by its present name, from the Arabs. The an-
 cients were probably wholly unacquainted with
 it. It also escaped the notice of De Gama, who
 coasted along Africa; and was first seen by Lo-
 renzo Almeida in 1506, from whom it received
 the name of St. Lawrence, which it retained until
 the reign of Henry IV., when some French ravi-
 gators gave it that of Isle Dauphin.

This is one of the largest islands of the world, being 240 leagues long, from north to south, and from forty to seventy leagues broad. It is separated from the coast of Africa by the channel of Mosambique, from eighty leagues to 120 broad. A ridge of mountains (said to have an elevation of 10,000 to 12,000 feet) runs through the island from north to south, containing various valuable minerals and fossils, and also gives rise to a vast number of rivers and rivulets, which reach the sea, and abound in fish. In no region of the globe is vegetation more luxuriant than in this island, where nature abandoned to its own fertility produces the most various productions. The hills are covered to their summits with immense timber trees, and the plains or vast savannahs, are clothed with a rich herbage, affording pasture to innumerable cattle and sheep. Rice is cultivated to a great extent, and all the other vegetables and fruits of the tropics grow spontaneously. Unfortunately, however, this smiling scene is generally more than counterbalanced by the extreme unhealthiness of the climate, which renders it the almost certain grave of Europeans.

The wild animals of the island are of few species, there being neither lions, tigers, nor elephants, nor does it possess the horse.

At present Madagascar affords few objects of commerce, and its exports are almost totally confined to rice and cattle to the Mauritius. The Arabs export some of the species of fruit called sea cocoa-nut, or cocoa-nut of the Maldivas, (*nux medica* of botanists). The tree which affords this fruit is a species of palm, and is found on the Isle of Palms, on the coast of Madagascar only; at least, it has not hitherto been discovered in any other part of the world. The nuts picked up on the shores of the Maldiva islands are probably conveyed there in the south-west monsoon, when the currents between Madagascar and these islands set to the north-east.

The nuts of the *Ravensera* have also been exported: they are of an acrid aromatic nature, and used by the natives to season their food. The other objects of commerce are eagle or aloe wood (*agallochum*), which may be procured in any quantity, but of which little or none is taken off. The island affords cotton, and many useful gums and resins, amongst which is the elastic gum, or India rubber (*iatropa elastica*).

The island of Madagascar is inhabited by various tribes or castes, whose physical and moral characteristics denote their being descended from very different races. 1. The *Betsimisaracs*, or negro race, who inhabit the north-east coast, are in general stout and well made, and the women handsome; but the men are drunkards, cowards, and thieves. The *Antibanivouls*, neighbours of the last named caste, are more laborious and less debauched, but also more stupid and ignorant. The *Betalimenes* employ themselves chiefly in raising cattle. 2. The *Ilovas*, who inhabit the province of Ancove, near the middle of the island, differ entirely from the above tribes. They are tall and well made, though rather slender, and much resemble the natives of India, having long black hair, aquiline noses, and thin lips: there is also some difference in their dialect. This caste is by far the most advanced in the arts, being acquainted with the manner of forging iron, and are correct imitators of the nicest European works in metal; their chains of gold and silver are particularly fine. They inhabit the most healthy province of the island, being from its elevation so cold in winter that fires are necessary; but, the province producing neither tree nor shrub, they use the straw of a gramineous plant as fuel. 3. The *Autamahouris* form another peculiar caste, whose language differs from that of the other tribes, being a dialect of the Malay, and their features also denote their being descended from the Malay race. In the centre of the island is said to exist a race of dwarfs, named *Kimos*, who do not exceed three feet and a half in height, whose arms are extremely long, with paws like those of the ape, and the females totally without breasts, nourishing their infants with cows' milk, of which animals they breed great herds. A *Kimos* woman was sold to the French at Fort Dauphin in 1768, and is the only individual of the species ever seen by Europeans. A detail of the subdivisions of all these races would lead us far beyond the limits we have prescribed to ourselves, and we must therefore confine our notice to a few of the prominent and general traits in the Madagasse character.

The inhabitants taken generally are lazy, spending three-fourths of their time in their huts, stretched on a mat, and playing on the *marouvané*, or *tritri*. Their only serious employments are the chase, fishing, and occasionally looking after their cattle. Careless of the future, the Madagasse little fears the frowns of fortune, and, as he is unacquainted either with love or friendship, he has little to disturb the tranquillity of his mind. His religion extends to the acknowledgement of a preserving deity, to whom he pays no devotion, but, on the contrary, loads him with invectives, when any misfortune happens to him. He also believes in an evil spirit, whose habitual residence is in burying places, and hence he will not approach a grave during the night. In general his youth is spent in debauchery, and it is not until the middle of his career that he takes a wife to accompany him the rest of the way. The marriage ceremony consists in killing a bullock, and feasting the two families. All ages are addicted to excess of spirituous liquors, and to their own intoxicating mixtures. A Madagasse accused of sorcery is confined in a solitary hut without victuals for two or three days, when he is obliged to undergo an ordeal by swallowing a poisonous infusion, which if he keeps down is sure to destroy, at the same time that it convicts him, but if he has the good fortune to throw it up, by the natural exertion of the stomach alone, he lives and is acquitted. The same trial is ordered to persons of both sexes, accused of incestuous intercourse, as well as in cases of doubtful robbery; for, where the fact is proved, the criminal is condemned to slavery.

The professions of priest and physician are here, as amongst most savage nations, united in the same person, and are practised only by in-

dividuals of the Arab tribes. The dress of the women consists in a girdle, or kind of petticoat, and a long piece of cloth, one end of which is folded round the hips, while the other covers the shoulders, and head in wet weather: a corset closed both before and behind like a banyan, and which leaves the bosom bare, completes the dress. The ornaments of the women are necklaces and bracelets of glass beads, or gold and silver chains. Both sexes wear amulets of bits of certain woods, &c., enveloped in cloth on their necks and wrists, to defend them from the effects of sorcery. The leaves of the ravenara serve the purposes of plates, dishes, and spoons. The various estimations of the population of Madagascar make it from 1,000,000 to 1,500,000 souls.

The western side of Madagascar has many bays and rivers, but very few of them are ever visited by European ships, and consequently are very little known. The most frequented is St. Augustine's Bay, at the south-west extremity of the island, which is a safe road where may be had any quantity of refreshments, particularly bullocks, goats, fowls, Guinea fowls, oranges, limes, plantains, pumpkins, yams, and sweet potatoes. They are procured from the natives in exchange for gunpowder, looking-glasses, muskets, pistols, brass and iron pots, knives and scissars, nails, flints, &c. Water is filled in the boats four or five miles up a river, named Dartmouth, which falls into the bay, and which abounds (as well as the bay) in fish, but is also infested by the alligator. The chief of this part of the island resides in a mud-built town twelve miles from the bay; most of the natives who go on board ship to barter speak a little English, and have taken English titles, such as the prince of Wales, duke of York, &c.

Morundava Bay, in latitude $20^{\circ} 16'$, is sometimes visited for refreshments; it is exposed from north-west to south-west and has several shallow barred rivers falling into it. A village of huts is on the north side of the bay.

Bembatook Bay in $15^{\circ} 43'$ is large and safe, and represented as one of the most eligible places in the island for a European settlement. Bullocks and rice are very abundant, as well as other objects of commerce. The French purchased slaves and cattle here for the use of the Isle of France; which were driven across the island to Foul Point, where the slaves were embarked and the cattle slaughtered and salted. The natives are friendly to strangers; and the Arabs of the continent visit this port for purposes of trade. The town, from which the bay has its name, is three leagues within the entrance of the bay, and on a cove entirely land-locked and accessible to ships.

New Masseliege is a large town on a barred river accessible only to small craft. It is protected by a mud fort with many cannon; and the king's residence is built in the European manner with two stories, with an armoury and many articles of European furniture, as tables, chairs, looking-glasses, &c. Many Arabs reside here, and trade to Arabia and Persia. Opposite the river's mouth is an island, about four miles long, on which the French had once an establishment.

Manigara River is said to be six miles broad at the entrance, with six and seven fathoms three leagues up.

The bight or bay of Astada is a large indentation at the north-west end of the island, with several islands before it. Here is Morigambo harbour, described as capacious and safe.

Passandava, at the north-west extremity of the island, is a large bay running seven leagues to the south. It abounds in provisions, wood, and water.

Fort Dauphin, once the principal establishment of the French, is near the south-east extremity of the island, on a cove capable of receiving five or six vessels, land-locked. It is situated on high ground commanding the road, and is a long square surrounded by a wall of lime and gravel coated with cement. Two leagues south of the fort is a large river, which at a short distance from its mouth expands into a lake, fifteen miles in circuit; the mouth of the river is however, as well as most others on the east coast, barred against the entrance of ships. This part of the island is populous, and under a great many chiefs: their villages are on eminences, fortified with parapets of turf, palisades, and ditches. Bullocks, poultry, and provisions are abundant, but good water is only found at some distance from the shore, where are excellent springs. The bay of St. Luce is within several islands and reefs: on its south point the French formed a palisaded establishment in 1737.

Manooro River, in latitude 20° , is much frequented by the French of the Mauritius for rice and cattle. The natives manufacture fine mats and cloth from the fibres of a plant, as well as cloth from the cotton of the island. There is a village at the mouth of the river, and before it good anchorage within a reef.

Hy Vondron is a considerable village, and great rice market, three leagues south of Tamatave. This latter is on a lagoon, named Nossebe; landing is difficult, from a high surf. The French had a post here to procure cattle and rice for their islands, but which was taken by the English in 1811; it was on a high point of land and considered healthy. The Isle of Prunes is three leagues from Tamatave, small but covered with wood, and has fresh water. Between Tamatave and Foul Point are several villages on the shore.

Foul Point (Voulu-Voulu of the natives), another establishment of the French, is on a cove within a reef, which shelters the anchorage. The settlement consists of a piece of ground, surrounded by palisades, with a house for the resident, sheds, &c. A large native village is close to it, where is the king's residence, consisting of a story, raised from the ground, ascended to by a ladder, and surrounded by the huts of his attendants and women. Slaves and cattle are procured here in exchange for musquets, powder and shot, flints, knives, &c.

St. Mary's Island (Nossi Ibrahim of the natives) is two leagues from the main; the east side is lined with breakers, but the west side forms a good port, with depth and capacity for the largest fleets. The country abounds in provisions, and spars for masts may be had here. The French formed an establishment here in

1740, but the persons in it were all massacred by the natives. In 1743 they renewed it, but it was abandoned in 1760, on account of its unhealthiness. This island was the rendezvous of the European pirates that infested the Indian seas in the beginning of the last century.

Antongil Bay (Manghabeas of the natives) is eight or nine leagues wide, and fifteen deep; its shores are elevated, and towards its head are some islands, within which is an excellent harbour, called by the French Port Choiseul. Several rivers fall into the bay, but they are all barred against the entrance of any thing but boats, though deep within. This is one of the most fertile parts of the island, but also the most unhealthy: the tide rises three or four feet. Here the French attempted to form an establishment conducted by the celebrated adventurer Beniwowsky.

Port Louquez, at the north-east extremity of the island, is a capacious and secure harbour for the largest fleets; it is also said to be healthy and abundant in provisions.

The chief capes of Madagascar are, Cape St. Mary, the south point; Cape St. Andrew, the north-west; Cape Ambre, the north; and Cape East, the east.

Tananarive is at present considered as the capital of the island, and is the place where the king Radama resides, and the late treaty for the abolition of the slave trade was concluded. Mr. Jones, who was present on this occasion, says 'their houses are built exceedingly neat and convenient—are high and very airy, and supported by strong timbers, resembling the masts of a ship. The apartments of the royal palace are ornamented with silver mirrors; and are in neatness equal to any rooms that I have seen in the government-house at Port Louis.'

Governor Farquhar, writing to the directors of the London Missionary Society, represents the natives as 'a people without any national religion, or superstitious of consequence to combat, consisting of above 4,000,000 of souls, ready, as well as capable, of receiving instruction under the will of a monarch, who is as eager to obtain it for them, as you can be to grant it.' See our article LONDON MISSIONARY SOCIETY. From the manner in which he acted in reference to the late treaty, the royal authority appears to be absolute, and the present sovereign deserves to be considered the father of his people; for after having fully discussed the slave trade in several conferences with Mr. Hastie, the British commissioner, he consulted his ministers on the subject, who were all greatly averse to its abolition.

When the Portuguese first visited India, they kept too close to the continent to discover Madagascar. In 1506 it was visited by Triстан d'Acunha, but as they could not find it produced either gold or silver, which were the chief objects of their research, they paid little attention to the discovery. When the French had formed the settlements of Bourbon and Mauritius, they turned their attention to Madagascar, as a place whence the wants of their new colonies on the smaller islands might be supplied. With this view they sent several expeditions to various parts of the island, but they were repeatedly

driven out. The most celebrated of their establishments for a time was that attempted by count Benywowsky, at the north-west extremity; but this daring adventurer soon involved himself in a war with the natives, in which he was killed, and the establishment altogether failed. The most permanent footing they gained was at Fort Dauphin, on the south-east coast, where their influence was maintained until the loss of Bourbon and Mauritius in the late war.

The entire population of Madagascar is difficult to estimate, from the great number of small states into which it is divided. Flacourt does not suppose it to exceed 1,600,000; Rochon heard it estimated at 4,000,000, but a much later authority makes it 3,600,000.

MAD'AM, *n. s.* Fr. *madame*, my dame; Ital. *madama*. A term of compliment used in address to ladies of every degree: anciently pronounced as in French, with the accent upon the last syllable. Certes, *madam*, ye have great cause of plaint.

Spenser.

Madam, once more you look and move a queen!

Philips.

MADAN (Martin), an English divine of a respectable family, born about 1726, and bred for the bar, which he relinquished for the church, though he obtained no preferment. The chapel of the Lock Hospital was built chiefly through his exertions, and he officiated as chaplain many years gratis. He was long a very popular preacher, but incurred much obloquy by publishing a work entitled, *Thelyphthora*, or a Treatise on Female Ruin; in 3 vols. 8vo. 1781; wherein he defended the lawfulness of polygamy, in cases of seduction. He also published a translation of Juvenal and Persius, in 2 vols. 8vo. He died in 1790. He was a man of great abilities, and unimpeachable morals.

MAD-APPLE. See SOLANUM.

MADDEN (Samuel), D.D., an Irish divine of French extraction, educated at Dublin. He had some church preferments in Ireland. In 1729 he published *Themistocles*, or the Flower of his Country, for which he received a library from his bookseller. In 1731 he projected a scheme for promoting learning in Dublin College by premiums. In 1732-3 he published *Memoirs of the Twentieth Century*; being original letters of State under George VI. in 6 vols 8vo., London. This work was called in and suppressed. In 1740 he set apart £100 a-year, to be divided into three premiums for encouraging arts and manufactures in Ireland. In 1743 or 1744 he published *Boulter's Monument, a Poem*. He died December 30th, 1765.

MAD'DER, *n. s.* Sax. *mabene*; Teut. *madder*. A plant. See below.

The flower of the *madder* consists of one single leaf, which is cut into four or five segments, and expanded at the top; the flower-cup afterwards becomes a fruit, composed of two juicy berries closely joined together, containing seed for the most part hollowed like a navel; the leaves are rough, and surround the stalks in whorles.

Miller.

Madder is cultivated in vast quantities in Holland: what the Dutch send over for medicinal use is the root, which is only dried; but the greatest quantity is used by the dyers, who have it sent in coarse powder.

Hill.

MADDER. See **RUBIA**. It is yellow at first, but grows red and dark with age. It should be chosen of a fine saffron color, in very hard lumps, and of a strong though not disagreeable smell. The best roots are about the thickness of a goose quill, or at most of the little finger: they are semitransparent, and of a reddish color; they have a strong smell, and the bark is smooth. Madder is also cultivated in Smyrna, and some other countries of Turkey in Asia. It is more esteemed than the best Zealand madder; and experiments have shown that it is superior to any other kind as a dyeing ingredient. The fine color of these madders, however, has been attributed to their being dried in the air, and not in stoves. The root of madder impregnates water with a dull red color, and alcohol with a deep bright red. This root, when eaten by animals with their food, tinges their urine, and their bones, of a deep red. Wool, previously boiled in a solution of alum and tartar, receives from a hot decoction of madder and tartar a very durable but not a very beautiful red color. Wool would receive from madder only a perishable dye, if the coloring particles were not fixed by a base, which occasions them to combine with the stuff more intimately, and which in some measure defends them from the destructive influence of the air. For this purpose, the woollen stuffs are first boiled for two or three hours with alum and tartar, after which they are left to drain; they are then slightly wrung and put into a linen bag, and carried into a cool place, where they are suffered to remain for some days.

The quantities of alum and tartar, as well as their proportions, vary much in different manufactories. Mellot recommends five ounces of alum and one ounce of tartar to each pound of wool; if the proportion of tartar be increased to a certain degree, instead of a red, a deep and durable cinnamon color is produced, because, as we have seen, acids have a tendency to give a yellow tinge to the coloring particles of madder. Berthollet found, that, by employing one-half tartar, the color sensibly bordered more on the cinnamon than when the proportion was only one-fourth of the alum. In dyeing with madder, the bath must not be permitted to boil, because that degree of heat would dissolve the fawn-colored particles, which are less soluble than the red, and the color would be different from that which we wish to obtain. If wool be boiled for two hours with one-fourth of sulphate of iron, then washed, and afterwards put into cold water with one-fourth of madder, and then boiled for an hour, a coffee color is produced. Bergmann adds, that if the wool have not been soaked, and if it be dyed with one part of sulphate of iron, and two of madder, the brown obtained borders upon a red. Berthollet employed a solution of tin in various ways, both in the preparation and in the madding of cloth. He used different solutions of tin, and found that the tint was always more yellow or fawn-colored, though sometimes brighter than that obtained by the common process. Mr. Gühliche describes a process for dyeing silk with madder; for one pound of silk he orders a bath of four ounces of alum, and one ounce of a solution of tin; the

liquor is to be left to settle, when it is to be decanted, and the silk carefully soaked in it, and left for twelve hours; and after this preparation it is to be immersed in a bath containing half a pound of madder softened by boiling with an infusion of galls in white wine: this bath is to be kept moderately hot for an hour, after which it is to be made to boil for two minutes. When taken from the bath, the silk is to be washed in a stream of water, and dried in the sun. Mr. Gühliche compares the color thus obtained, which is very permanent, to the Turkey red. If the galls be left out, the color is clearer. A great degree of brightness may be communicated to the first of these, by afterwards passing it through a bath of brasil wood, to which one ounce of solution of tin has been added: the color thus obtained, he says, is very beautiful and durable. The madder red of cotton is distinguished into two kinds: one is called simple madder red; the other, which is much brighter, is called Turkey or Adrianople red, because it comes from the Levant, and has seldom been equalled in brightness or durability by our artists. Galls or sumach dispose thread and cotton to receive the madder color, and the proper mordant is acetate of alumina. The nitrate and muriate of iron as a mordant produces a better effect than the sulphate and acetate of the same metal; they afford a beautiful, well saturated violet color. The Adrianople red possesses a degree of brightness, which it is difficult for us to approach by any of the processes hitherto mentioned.

Some years ago, Mr. Papillon set up a dye-house for this red at Glasgow; and in 1790 the commissioners for manufactures in Scotland paid him a premium, for communicating his process to the late professor Black, on condition of its not being divulged for a certain term of years. The time being expired, it has been made public, and is as follows:—

Step. 1.—For 100 lbs. of cotton, you must have 100 lbs. of Alicant barilla, 20 lbs. of pearl ashes, 100 lbs. of quicklime.

The barilla is to be mixed with soft water in a deep tub, which has a small hole near the bottom of it, stopped at first with a peg. This hole is to be covered in the inside with a cloth supported by two bricks, that the ashes may be prevented from running out at it, or stopping it up, while the lie filters through it. Under this tub must be another, to receive the lie, and pure water is to be passed repeatedly through the first tub, to form lies of different strength, which are kept separate until their strength is examined. The strongest required for use must float an egg, and is called the lie of six degrees of the French hydrometer. The weaker are afterwards brought to this strength by passing them through fresh barilla; but a certain quantity of the weak, which is of two degrees of the above hydrometer, is reserved for dissolving the oil, the gum, and the salt, which are used in subsequent parts of the process. This lie of two degrees is called the weak barilla liquor; the other the strong.

Dissolve the pearl ashes in ten pails, of four gallons each, of soft water, and the lime in fourteen pails. Let all the liquors stand till they

become quite clear, and then mix ten pails of each. Boil the cotton in this mixture five hours, then wash it in running water, and dry it.

Step. 2. Bain bis, or gray steep.—Take a sufficient quantity (ten pails) of the strong barilla water in a tub, and mix with it two pailfuls of sheep's dung; then pour into it two quart bottles of sulphuric acid, one pound of gum-arabic, and one pound of sal ammoniac, both previously dissolved in a sufficient quantity of weak barilla water; and lastly, twenty-five pounds of olive oil, previously dissolved, or well mixed with two pails of the weak barilla water. The materials of this steep being well mixed, tread down the cotton into it until it is well soaked; let it steep twenty-four hours, then wring it hard and dry it. Steep it again twenty-four hours, and again wring and dry it. Steep it a third time twenty-four hours, after which wring and dry it; and, lastly, wash it well, and dry it.

Step. 3. The white steep.—This part of the process is precisely the same with the last in every particular, except that the sheep's dung is omitted in the composition of the steep.

Step. 4. Gall steep.—Boil twenty-five pounds of bruised galls in ten pails of river water, until four or five are boiled away; strain the liquor into a tub, and pour cold water on the galls in the strainer to wash out of them all their tincture.

As soon as the liquor is become milk-warm, dip your cotton, hank by hank, handling it carefully all the time, and let it steep twenty-four hours. Then wring it carefully and equally, and dry it well without washing.

Step. 5. First alum steep.—Dissolve twenty-five pounds of Roman alum in fourteen pails of warm water, without making it boil, scum the liquor well, add two pails of strong barilla water, and then let it cool until it is lukewarm. Dip your cotton, and handle it hank by hank, and let it steep twenty-four hours; wring it equally, and dry it well without washing.

Step. 6. Second alum steep.—This is in every particular like the last; but, after the cotton is dry, steep it six hours in the river, and then wash and dry it.

Step. 7. Dyeing steep.—The cotton is dyed by about ten pounds at once, for which take about two gallons and a half of bullock's blood, mix it in the copper with twenty-eight pails of milk-warm water, stir it well, add twenty-five pounds of madder, and lastly, stir all well together. Then having beforehand put the cotton on sticks, dip it into the liquor, and move and turn it constantly one hour, during which gradually increase the heat until the liquor begins to boil at the end of the hour. Then sink the cotton, and boil it gently one hour longer; and lastly, wash it and dry it.

Take out so much of the boiling liquor, that what remains may produce a milk-warm heat with the fresh water with which the copper is again filled up; and then proceed to make up a dyeing liquor, as above, for the next ten pounds of cotton.

Step. 8. The fixing steep.—Mix equal parts of the gray steep liquor and of the white steep liquor, taking five or six pails of each. Tread down the cotton into this mixture, and let it steep

six hours: then wring it moderately and equally and dry it without washing.

Step. 9. Brightening steep.—Ten pounds of white soap must be dissolved very carefully and completely in sixteen or eighteen pails of warm water: if any little bits of the soap remain undissolved, they will make spots in the cotton. Add four pails of strong barilla water, and stir it well. Sink the cotton in this liquor, keeping it down with cross sticks, and cover it up; boil it gently two hours, then wash it and dry it, and it is finished. See DYEING.

MADDISON, a county of the United States, in Georgia. Chief town, Danielsville. Maddison springs are in this county: five miles from Danielsville. The waters are chalybeate.

MADDISON, a county of the Alabama territory, United States. The chief town Huntsville.

MADDISON, a county of the United States, in New York, erected from Chenango county, in 1806. It is bounded north and north-easterly by Oneida lake and county, east by about ten miles of Otsego county, south by Chenango county, west by about four miles on Cortland county, and twenty-seven on Onondaga county. The area is 616 square miles, or 394,240 acres. The surface is uneven in the south part; the northern part is quite level. Its manufactures are of importance, although a large proportion of the inhabitants are husbandmen. It sends three members to the house of assembly. Population 25,144.

MADDISON, a central county of the state of Virginia, is bounded north-east by Culpepper county, south by Orange county, and W. N. W. by Shenandoah county. Population 8381, of which 3970 are slaves.

MADDISON, a county of Ohio, United States, west of Franklin county. Population 1603. The chief town is London.

MADDISON, a county of the United States, in the state of Illinois. Edwardsville the chief town.

MADDISON, a county of the United States, in Kentucky. Population, in 1815, 15,540, including 3037 slaves. Richmond the chief town.

MADDISON, a post town of the United States, and capital of Morgan county, Georgia.

MADDISON, a town of the United States, the chief town of Jefferson county, in the state of Ohio. It is situated on the Ohio, thirty miles below Vevay.—Also a recently established town of the United States in Indiana.

MAIDIFFY, *v. a.* } Lat. *madefio*. To
MADEFAC'TION, *n. s.* } moisten; make wet: the act of wetting.

To all *maderfection* there is required an imbibition.
Bacon.

MADEIRAS.—The Madeira Islands, two in number, Madeira Proper and Porto Santo, are situated between lat. 32° 22' and 33° 10' N., and long. 17° 30' and 16° 20' W., and 150 leagues from Cape Blanco in Africa. See PORTO SANTO.

Madeira is sixty miles long and twenty broad, containing 407 square miles, or 260,480 square acres. It is one immense mountain, at the summit of which is an excavation, supposed to have been the crater of a volcano. It is now covered

with grass. The quantity of lava and other volcanic matters found on the island are a sufficient proof of the former existence of subterranean fires. The various branches of this mountain are separated by narrow glens, the sides of which are thinly covered with soil, but nevertheless fully reward the high cultivation they have received. Many of them have neat villages and hamlets, and all possess rivulets of fine water.

The climate is mild and temperate, and often recommended in pulmonary complaints. The different elevations, however, afford every variety of temperature, from the scorching heat of the torrid zone, to the moderate cold of middle Europe. In January the summit of the mountain is covered with snow, while at Funchal the thermometer is at 64°. The minimum is not lower than 55°; the maximum (except with a south-east wind, when it rises at times to 95°) does not exceed 76°.

The importance of Madeira as a colony is derived solely from its vineyards, which are enclosed with hedges of the prickly pear, wild rose bushes, myrtle, and pomegranate. The wild grape is the most generally cultivated, but there is also a red grape which gives a white wine, called batardo, and another white grape which produces a reddish wine, called tinto, known in the English market by the name of London particular. The quantity of wine annually produced is estimated at an average of 25,000 pipes, of 120 gallons each, of which 15,000 are exported, viz. to England 4500 : to the East Indies 5500 : to the West Indies 3000 : to the United States, &c., 2000. The remaining 10,000 pipes are consumed in the island. About 500 pipes of a sweet wine, called Malmsey, is also made. The price of wine on the island has been of late on the increase. In 1790 the first quality of the dry wine sold for £32. In 1804 it had risen to £45. In the former year a pipe of Malmsey sold for £60.

The other vegetable productions of the island are the eddoe root, on which the poor class chiefly subsist, and the leaves of which are given as food to their hogs. Sweet potatoes is another article of common food, as well as chestnuts, which are planted in the high parts of the island unfit for vines. Wheat and barley are sown in the vineyards, when the vines are nearly worn out; but the whole produce of these grains does not exceed three months' consumption, the deficiency being made up from the Azores, and North and South America. Sugar cane is also cultivated on this island, from whence it is said to have been first carried to America. The island also produces the mastic tree, and other gums, together with the cinnamon, cedar, &c. The gardens produce most of the European fruits, as well as the plantain, guava, &c., of the tropics.

The only wild animal is the rabbit, and the only reptile the lizard; but common domestic animals are in abundance. The custom of turning the hogs into the woods, to seek their food, has produced a half-wild breed, which are hunted. The population of the island is from 80,000 to 90,000, according to Mr. Barrow, and Lord Macartney; but other estimates make it as high as 110,000 and even 130,000.

Negro slavery, to the great credit of Portugal, is not permitted in this island, so that the body of the people are of Portuguese descent: and the peasantry are a remarkably fine and healthy race; but a great deal of distress and mendicity is said to be visible at times. The middling class in Funchal are clothed in black. The Portuguese gentry live in a proud retired manner, associating little with the English, or any strangers: and the poverty which prevails in the country is not suffered to appear in the edifices and establishments of the Catholic religion. The city abounds in churches, and in the country a chapel is said to be found at every fifty yards. Many of these are handsomely built. In the city, the most opulent part of the inhabitants consists of British merchants, who live in a splendid hospitality: it is upon them also that the Portuguese poor chiefly depend.

The military force in 1790 consisted of 150 infantry of the line, 150 artillery, 2000 regular militia, clothed, armed, and exercised, and 10,000 irregular militia. The island is divided into two captaineries, named Machico and Funchal. The English have twenty commercial houses at Madeira, whose union forms the British factory, and who almost monopolise the whole trade. The exports, besides wine, are insignificant, consisting of some wood, mastic, and other gums, honey, wax, and orchilla.

The whole value of exports is estimated at £500,000, of which England and her colonies take £400,000, the United States £90,000, and Portugal only £10,000. The imports are, from England, manufactures for £300,000; from the United States, lumber, corn, &c., for £100,000; and about the same value from Portugal, the Brasils, and Azores, so that the imports and exports balance each other. The revenue consists of one-tenth of the produce of the vineyards, and a duty of ten per cent. on imports, and eleven per cent. on exports, producing altogether about £100,000, the annual expenses being about £70,000; a nett revenue consequently remains to the crown of 30,000, but some years this sum is said to be reduced to one-third.

Funchal, the only town of Madeira, is situated on the south coast, on a large open bay, but which has, at no season, convenient anchorage. See FUNCHAL.

Madeira is said to have been early visited by an English vessel, which left here a gentleman of the name of Macham or Machin, and a French lady to whom he was attached. Mr. Bowles has founded upon this story, says lord Byron,

————— a gentle episode :
And gravely tells (attend each beauteous miss)
When first Madeira trembled to a kiss.

Of course our author meant to say, what appears to have been the truth, that Madeira was uninhabited when first discovered: the Portuguese made the first settlement here, and have ever since retained the sovereignty.

The first landing was made in 1419; and in 1431 Don Henry of Portugal sent Tristan Tessaora, and Goncalvo Zarco, with a colony, to take possession of the island. They now divided it into

the two districts Machico and Funchal; but its prosperity is said to have been seriously retarded by a fire which was kindled among the forests with which the island was covered, and which continued to rage for five or six years. When, however, it was extinguished, the ashes had so far increased the fertility of the ground, on which the soil was in many parts very thin, that its produce soon became valuable. The first staple was sugar; but, when this became cultivated in the West Indies, it ceased to be equally profitable with their wines, which have ever since furnished the basis of a flourishing commerce.

In 1801, when it was apprehended that France might attempt to seize upon it, it was taken temporary possession of by a British Squadron, but restored at the peace of Amiens. In 1807, however, when the Portuguese government were compelled to emigrate, Britain again occupied the island in trust, and in that capacity held it. The duty on Madeira wine in England, when imported in British vessels, is £96 12s. 6³/₄d. per tun; on which, when exported to the East Indies and China, a drawback is allowed of £86 2s. per tun. For vessels stopping here, provisions and refreshments are exorbitantly dear. Beef and mutton are from 1s. 3d. to 1s. 6d. per lb., and of very indifferent quality; and fowls, equally bad, cost a Spanish dollar each. Fruit and vegetables are also ill supplied.

MADIGHERY, a town and fortress of India, belonging to the rajah of Mysore. On the fall of the Bijanagur sovereigns it came into possession of a Hindoo family, who retained it till conquered by one of the Mysore rajahs. The Mahratta general, Bulwunt Row, besieged it for five months, without effect. Long. 77° 15' E., lat. 13° 33' N.

MADIGHESHY, a fortress of the south of India, also belonging to the Mysore rajah, is situated on a rock, and is a place of great strength. At the foot of the rock is a fortified town, containing about 200 stone houses. This place originally belonged to a Hindoo family, and is named after one of the ladies who immolated herself on her husband's tomb; in consequence of which Madigheshy was for a long period governed by females. They were, however, subdued by one of the Mysore rajahs. Long. 77° 16' E., lat. 13° 48' N.

MADISCRODIC, a post town of Louisiana, near the entrance of the river Chiffenet, into lake Pontchartrain, twenty-seven miles north of New Orleans. It stands on the best harbour of the lake.

MADNESS, a most dreadful kind of delirium without fever. See MEDICINE.

MADOX (Dr. Isaac), a worthy English prelate, born July 27th, 1697, of obscure parents, who died during his infancy. He was put to school by some friends, and completed his studies at Aberdeen. He entered into orders; and being made chaplain to Dr. Bradford, bishop of Chichester, he married his niece, in 1731. After this he was made king's chaplain, clerk of the closet to queen Caroline, and, about 1736, bishop of St. Asaph; whence, in 1743, he was translated to Worcester. He was an excellent preacher, and a great promoter of public chari-

ties, particularly the Worcester infirmary, and the hospital for inoculating the small pox at London. He published some sermons, and a Defence of the Doctrine and Discipline of the Church of England, in answer to Mr. Neale's History of the Puritans. Dr. Madox died in 1759.

MADOX (Thomas), a learned and indefatigable English antiquary, born in the seventeenth century. He published, in 1702, A Collection of Antique Charters and Instruments, taken from the originals, from the Norman Conquest to the end of the reign of Henry VIII. In 1711 he published a work of still more importance, viz. The History and Antiquities of the Exchequer of the kings of England, from the conquest to the end of the reign of Edward II., &c., in folio, which was reprinted in 1769 in 4to. This was dedicated to queen Anne, with a long prefatory epistle to lord Somers; and procured him the office of historiographer royal. His last work was Firma Burgi, or An Historical Essay concerning the cities, towns, and boroughs of England; dedicated to king George I. He also compiled a valuable collection of transcripts, in 94 vols. folio and 4to., consisting chiefly of extracts from records in the Exchequer, the rolls in the Tower, the Cottonian Library, &c., intended to afford materials for a feudal history of England from the earliest times. These volumes, which cost him thirty years' labor, were presented by his widow to the British Museum.

MADRAS, or Fort St. George, the chief settlement of the English on the Coromandel coast, and second of the three presidencies, is a regular fortification on the beach, one of its bastions being washed by the waves: it mounts about 2500 guns, having three tiers toward the sea, where, however, they seem to be of no other use than very inefficiently to protect the ships in the road. Within the fort are all the public offices of the company, counting-houses of the private traders, one church, assembly-room, &c. The Black Town is separated from the fort by an esplanade, two miles in extent, and is said to contain 80,000 persons; Hindoos, Mussulmans, Armenians, native Portuguese, and a few English. It is surrounded by an entrenchment. The population of Fort St. George and the Black Town, exclusive of Indians, is about 5000 Europeans, the same number of half caste, and 500 Armenians.

The road of Madras is the worst in India, the shore being perfectly straight. The swell is at all times considerable, and the surf so great that ship's boats can never land, and therefore all communication with the shore is by boats of a peculiarly buoyant construction, named Masula boats; composed of broad boards, the edges of which are sewed together with fibres of coir, without any frame-work, but with thofts for the rowers. The pilots of these boats chaunt a song, to the cadence of which the rowers keep time with their oars, quickening or retarding the motion of the boat according to the nature of the surf. The rowers also join in chorus. All the dexterity and experience of the boatmen (who are bred from their infancy to the business) are sometimes ineffectual, and a

year seldom passes without an accident. When the surf is unusually high, a catamaran, or raft of three pieces of wood lashed together, with two men on it, attends the Masula boats with passengers, and has often saved lives when the boat has been swamped. These catamarans, furnished with a sail, are also used for fishing, and go out to sea several leagues with the morning land wind, and return with the sea breeze. Upwards of 1000 species of fish are found at Madras and along the Coromandel coast; but the numbers of each species is not great, doubtless from the agitation of the waters.

To the south of Madras is a level plain, called the Choultry, where the English have a great number of elegant houses; and at the south extremity of the plain is Chepauk, the palace of the nabob of Arcot, almost concealed in a grove. More is a village on a salt lake, eight leagues north of Madras. The lake abounds in fish and oysters; with which latter it supplies the English of Madras, who also make parties of pleasure to fish and sail on the lake.

Armagon, or Duraspatam, before the establishment of Madras was the chief settlement of the English on the Coromandel coast, in 1628 being described as mounting twelve guns round the factory, with a guard of twenty-three factors and soldiers.

The Madras territory is now at least 700 miles in length, but of disproportionate breadth. The first important accession it received was the Jagier district of 108 miles in length, by forty-seven in breadth, obtained from Mohammed Aly, the nabob of the Carnatic, in 1750. It next obtained, in 1769, the five provinces, called the Northern Circars, from the great Mogul. In the wars with Tippoo Sultan several districts were added by cession from the Nizam and others; and finally the whole of the Carnatic was taken possession of in 1801, except a small portion assigned to the nabob Azeem al Omrah for his private estate.

The countries subject to this presidency, comprehend nearly the whole of India south of the river Kistnah, and the extensive province denominated the Northern Circars; within these boundaries, however, there are three native princes, the rajahs of Mysore, Travancore, and Cochin, who collect revenues, and exercise a certain degree of authority; but, with reference to external politics, are wholly dependent on the British government, are protected by a military force, and pay a large annual tribute. The rest of the country is under the immediate jurisdiction of the governor and council at Madras; and has been subdivided into the districts of Arcot, Bellary, Canara, Chingleput, Chittore, Coimbatore, Combaconum, Cuddapah, Ganjam, Guntoor, Madras, Madura, Malabar North, Malabar South, Masulipatam, Nellore, Rajahmundry, Salem, Seringapatam, Tanjore, Tinnevely, Trichinopoly, Verdachellum, and Vizagapatam, over each of which there is a European judge, and collector, with the requisite establishments. There are also four provincial courts of circuit and appeal, to which the above mentioned judges are subordinate, and a supreme court of appeal at Madras. The commerce of the East India

Company is carried on here by a certain number of their civil servants, denominated presidents, each of whom has the superintendence of a factory in different parts of the country, and receive their orders from the board of trade. The revenues arise principally from the land, which throughout India is considered generally as the property of government. The customs, excise, and post office, also yield a considerable revenue; but the charges lately exceeded the receipts by £500,000 sterling. See INDIA.

MADREPORÆ, in natural history, a genus of submarine substances; the characters of which are, that they are almost of a stony hardness resembling the corals, and are usually divided into branches, and pervious by many holes or cavities, which are frequently of a stellar figure. In the Linnæan system this is a genus of lythophyta: the animal that inhabits it is the Medusa. According to Donati, the color is white when polished; its surface is lightly wrinkled, and the wrinkles run lengthwise of the branches; in the centre there is a sort of cylinder, which is often pierced through its whole length by two or three holes. From this are detached about seventeen laminae, which run to the circumference in straight lines, and are transversely intersected by other laminae, forming many irregular cavities; the cellules, which are composed of these laminae ranged into a circle, are the habitations of little polypes, which are extremely tender animals, generally transparent, and variegated with beautiful colors. M. de Peyssonel observes, that those writers who only considered the figures of the submarine substances, denominated that class of them which seemed pierced with holes, pora; and those, the holes of which were large, they called madrepora. He defines them to be all those marine bodies which are of a stony substance without either bark or crust, and which have but one apparent opening at each extremity, furnished with rays that proceed from the centre to the circumference. He observes, that the body of the animal of the madrepora, whose flesh is so soft that it divides upon the gentlest touch, fills the centre; the head is placed in the middle, and surrounded by several feet or claws, which fill the intervals of the partitions observed in this substance, and are at pleasure brought to its head, and are furnished with yellow papillæ. He discovered that its head or centre was lifted up occasionally above the surface, and often contracted and dilated itself like the pupil of the eye: he saw all its claws moved, as well as its head or centre. When the animals of the madrepora are destroyed, its extremities become white. In the madrepora, he says, the animal occupies the extremity; and the substance is of a stony but more loose texture than the coral. This is formed, like other substances of the same nature, of a liquor which the animal discharges; and he adds, that some species of the polype of the madrepora are produced singly, and others in clusters.

MADRID, the capital of the Spanish monarchy, is situated near the centre of Spain on several low hills, part of the table land of New Castile, bounded on the north by the mountains

of Guadarama, and stretching to a distant horizon in all other directions. The neighbourhood is dry, arid, and naked; being almost wholly destitute of trees and towns, but watered by the Manzanares, which in summer is frequently dry.

This metropolis, though not commercial or the seat of any important manufactures, contains a number of handsome squares, streets, and buildings. The first amount to forty-two in number, mostly very small; but the Plaza Mayor and Puerta del Sol, when lighted, have a striking coup d'œil. The latter resembles a star, being crossed by five of the principal streets; the former is in the centre of Madrid, and is a regular oblong, surrounded by porticoes on freestone pillars; the houses are uniform, and five stories high, with balconies to each window. In the middle of one of the sides, is the palace called *de la Panaderia*, where the royal family come to witness public exhibitions; and on such occasions, particularly at the bull fights, still a favorite amusement, the view of this square is said to be magnificent. Most of the streets in the old town are narrow and crooked, paved with sharp pointed stones, and some of the principal ones have foot paths only wide enough for one passenger; but in the modern parts of the town the streets are wide and straight; and the whole city is well lighted. The street of *Alcala*, entered by the gate of that name, is the handsomest in Madrid, and will admit ten carriages abreast. Several of the public buildings are elegant structures. The *Palacio Real*, which stands on an eminence at the western extremity of Madrid, has four extensive fronts, adorned with pillars and pilasters. The audience chamber, consisting of a double cube of ninety feet, is much admired, and the whole interior is highly ornamented. It contains a large collection of paintings by the best Spanish, Italian, and Flanders masters. The churches deserve attention, rather for the decoration of the interior than for their general architecture. The number of churches and chapels in Madrid, including those which belong to the monasteries, convents, &c., exceeds 130; and the ground they occupy, including those establishments, is very extensive. The custom-house, the post office, the state prison, the town hall, the council house, and the academy of St. Fernando, together with several of the hospitals, are worth notice. Another royal palace, the *Buen Retiro*, stands at the eastern extremity of Madrid, encompassed with handsome and extensive grounds. The houses of the first grandees are only distinguished from those of private citizens by their magnitude; their entrances and staircases are narrow, awkward, and mean. The palaces of the families of *Berwick*, *Altamira*, and *Veraguas* (the last belonging to the descendants of Columbus), are perhaps exceptions; and the interior of the great houses is generally in a better style; many of them contain master pieces both of painting and sculpture. Madrid has also several promenades beyond the walls, and the *Prado* within the city. It is a spacious area, laid out in public roads and walks, provided with chairs and benches, embellished with statues, and adorned with avenues of fine trees. The concourse of people here is sometimes prodigious, but it presents a tiresome

uniformity; the ladies of high rank always keep in their carriages in the middle walk, while those who walk in the alleys are enveloped in their mantilla or large veil.

The great school, formerly the *Jesuits'* college has sixteen masters, and teaches the classical and Hebrew languages, law, logic, natural and experimental philosophy, and ecclesiastical discipline. There is also a seminary, on a comprehensive plan, for the sons of the nobility and gentry. A botanic garden was laid out about the year 1770, for teaching the elements of that science also a chemical school, and classes for engineering, for anatomy, and the practice of medicine and there are academies for the study of history painting, sculpture, and architecture; also for the Spanish language. This last has published a very superior dictionary on the plan of Dr. Johnson. The royal library contains above 100,000 volumes, and the cabinet of natural history has specimens of natural objects from various parts of the world, but chiefly from the Spanish colonies. Madrid contains a considerable number of book shops, but they have very few new works. The *Escorial* had for many years the exclusive privilege of printing. Female education, as in several Catholic countries, is chiefly conducted in the convents. The elevated site of the city, and the mountains that skirt the northern limits of the plain, being almost perpetually covered with snow render the climate cool, and little inconvenience is experienced from the heat of summer; but it is also changeable and comparatively humid. The population, including the military and strangers, is estimated at 170,000. The chief manufactures of Madrid are those of tapestry, mosaic work in stone, and porcelain, all belonging to the king, and consequently unproductive. In the midst of an unpropitious soil, destitute of arts, manufactures, and commerce, and almost of industry, it could not, it is said, procure subsistence from the adjacent country for ten days. It is therefore, absolutely dependent on remote provinces, or foreign countries, for every article of utility or ornament, for all the luxuries, and even the necessities of life. It is, in fact, only preserved from poverty and desertion by the expenditure of the court. The Spanish government has even discouraged, by heavy imposts, the culture of wine in the neighbourhood of the capital.

Madrid is first mentioned in history as a castle belonging to the king of Castile, which was sacked by the Moors in 1109: the court of Spain was not permanently fixed here till 1563. During the war of the succession (from 1702 to 1713) Madrid took a decided part in favor of the Bourbon against the Austrian claims. In 1808 it was early occupied by French troops, and, when the last members of the royal family were removing from the capital, the people burst into open insurrection, and a dreadful conflict took place between the French soldiery and the inhabitants.

Dr. Southey says 'There is no other instance upon record of an attempt so brave and so utterly hopeless, when all the circumstances are considered. The Spanish troops were locked up in their barracks, and prevented from assisting their

countrymen. Many of the French were massacred before they could collect and bring their force to act: but what could the people effect against so great a military force, prepared for such an insurrection, and eager, the leaders from political, the men from personal feelings, to strike a blow which should overawe the Spaniards and make themselves be respected?

We must insert the rest of his eloquent description of this horrid scene: it cannot but endear to Englishmen the peace and liberties which have certainly cost them much. 'The French poured into the city from all sides, their flying artillery was brought up, in some places the cavalry charged the populace, in others the streets were cleared by repeated discharges of grape-shot. The great street of Alcalá, the Puerta del Sol, and the great square, were the chief scenes of slaughter. In the latter the people withstood several charges, and the officer who commanded the French had two horses killed under him; General Grouchy also had a horse wounded. The infantry fired volleys into every cross street as they passed, and fired also at the windows and balconies. The people, when they felt the superiority of the French, fled into the houses; the doors were broken open by command of the generals of brigade, Guillot and Daubrai, and all within who were found with arms were bayoneted; and parties of cavalry were stationed at the different outlets of Madrid to pursue and cut down those who were flying from the town. A part of the mob, seeking an unworthy revenge for their defeat, attacked the French hospital; and some of the Spaniards who were employed within, encouraged at their approach, fell upon the sick and upon their medical attendants. But these base assailants were soon put to flight.

'At the commencement of the conflict Murat ordered a detachment of 200 men to take possession of the arsenal. Two officers happened to be upon guard there, by name Daoiz and Velarde, the former about thirty years of age; the latter, some five years younger, was the person who had been sent to compliment Murat on his arrival in Spain. Little could they have foreseen, when they went that morning to their post, the fate which awaited them, and the renown which was to be its reward! Having got together about twenty soldiers of their corps, and a few countrymen who were willing to stand by them, they brought out a twenty-four pounder in front of the arsenal, to bear upon the straight and narrow street by which the enemy must approach, and planted two others in like manner to command two avenues which led into the street of the arsenal. They had received no instructions, they had no authority for acting thus, and, if they escaped in the action, their own government would without doubt either pass or sanction a sentence of death against them for their conduct; never, therefore, did any men act with more perfect self-devotion. Having loaded with grape, they waited till the discharge would take full effect, and such havoc did it make, that the French instantly turned back. The possession of the arsenal was of so much importance at this time, that two columns were presently ordered to secure it: they attempted

it at the cost of many lives, and the Spaniards fired above twenty times before the enemy could break into the neighbouring houses, and fire upon them from the windows. Velarde was killed by a musket-ball. Daoiz had his thigh broken; he continued to give orders sitting, till he received three other wounds, the last of which put an end to his life. Then the person to whom he left the command offered to surrender: while they were making terms a messenger arrived bearing a white flag, and crying out that the tumult was appeased. About two o'clock the firing had ceased every where, through the personal interference of the Junta, the council of Castile, and other tribunals, who paraded the streets with many of the nobles, and with an escort of Spanish soldiers and imperial guards intermixed. It might then have been hoped that the carnage of this dreadful day was ended; the slaughter among the Spaniards had been very great; this, however, did not satisfy Murat; conformably to the system of his master, the work of death was to be continued in cool blood. A military tribunal under general Grouchy was formed, and the Spaniards who were brought before it were sent away to be slaughtered with little enquiry whether they had taken part in the struggle or not. Three groupes of forty each were successively shot in the Prado—the great public walk of Madrid. Others, in like manner, were put to death near the Puerta del Sol, and the Puerta del S. Vicente, and by the church of N. Senora de la Soledad, one of the most sacred places in the city. In this manner was the evening of that 2d of May employed by the French at Madrid. The inhabitants were ordered to illuminate their houses, and through the whole night the dead and the dying might be seen distinctly as in broad noon-day, lying upon the bloody pavement. When morning came the same mockery of justice was continued, and fresh murders were committed deliberately with the forms of military execution during several succeeding days. D. Alvaro Florez Estrada says, that care was not taken to despatch these victims of an atrocious system,—that their groans were heard through the night, and that to strike the more terror, permission was not given to remove the bodies for interment till after they had lain there two days.'

On the 20th of July Joseph Buonaparte made his public entry as king of Spain; but, on the 27th of the same month, found it necessary to retreat. He re-entered Madrid on the 5th of December, and remained till lord Wellington's operations in 1812 made it requisite for him to go to the assistance of Marmont. The battle of Salamanca was now fought; and Madrid being entered by a body of British troops, on the 12th of August, was occupied by them, until marshal Soult advanced from Andalusia. It now remained in possession of the French till the year following, when the battle of Vittoria led to its final liberation. 650 miles S.S.W. of Paris, and 850 west by south of Rome.

MADRIER, *n. s.* Fr. *mudrier*. A plank used in offence and defence by besiegers. See below.

Madrir, in war, is a thick plank, armed with iron plates, having a cavity sufficient to receive the mouth

of the petard when charged, with which it is applied against a gate, or other thing intended to be broken down. * * * Bailey.

Madrier also denotes a long and broad plank, used for supporting the earth in mining, carrying on saps, making caponiers, galleries, and the like. There are also *madriers* lined with tin, and covered with earth; serving as defences against artificial fires, in lodgments, &c., where there is need of being covered over head. Dr. A. Rees.

MAD'RIGAL, Fr. *madrigal*; Ital. *mandriale*; Lat. *mandra*; Gr. *μανδρα* (a fold, or cattle stall). A pastoral song; any light, airy, piece of poetry. Waters, by whose falls

Birds sing melodious *madrigals*. *Shakspeare*.
His artful strains have oft delayed
The huddling brook to hear his *madrigal*.

Their tongue is light and trifling in comparison of the English; more proper for sonnets, *madrigals*, and elegies, than heroic poetry. *Dryden*.

A *madrigal* is a little amorous piece, which contains a certain number of unequal verses, not tied to the scrupulous regularity of a sonnet, or subtility of an epigram: it consists of one single rank of verses, and in that differs from a canzonet, which consists of several strophes, which return in the same order and number. *Bailey*.

MADURA, **MATHURA**, or **MADRU**, a district in the Southern Carnatic, chiefly situated between 9° and 10° of N. lat. To the north it is bounded by Dindigul and the Polygar territory, to the south by Tinevelly, on the east by the district of Marawas, and on the west by Dindigul. The chief rivers are the Vaygaroo and Candaroo; and the principal towns Madura and Scholavanden.

The ancient sovereigns of this country were of the Pandian race: it is supposed to have been the Pandion Mediterranean, and Madura Regia Pandionis of Ptolemy. In conjunction with Trichinopoly it forms the Hindoo geographical division of Madru.

This district never attained the cultivation of Tanjore and some other of the neighbouring districts, until transferred to the British in 1801 by the nabob of Arcot. During the early Carnatic wars, from 1740 to 1760, a great proportion of it was covered with forests and thick jungle, in the recesses of which the independent polygars had their castles. It is comprehended in the Dindigul collectorship, and, having long enjoyed tranquillity, is rapidly rewarding the care of the British government.

MADURA, a city of the Southern Carnatic, the capital of the district of Madura, stands in lat. 9° 51' N., long. 78° 13' E., the four sides fronting nearly the four cardinal points. The river, passing from the north-west, washes the walls at the north-east angle; and the bed, unless immediately after heavy rains, lies in dry flats of sand, on some of which are buildings with channels between them. This town, during the Carnatic wars, sustained many sieges, and was often in the hands of refractory polygars. The fortress has not of late been thought worth maintaining. Travelling distance from Seringapatam 240 miles, from Madras 307.

MADURA, an island in the Eastern Seas, situated off the north-east coast of Java, from which it is separated by a narrow strait, is in length about

100 miles, by sixteen the average breadth. The channel of the straits, where it narrows, is only eighty-three fathoms wide, and marked with buoys; at the entrance there are but three fathoms water, yet ships of a large size can pass it, the bottom being soft mud, which is easily worked through with a light breeze. In 1747 the Dutch invaded and subdued this island, and in 1775 it contained 30,000 *tjatgars*, or families. At that period a Dutch junior merchant resided here, at Samanap, the capital, but the commerce was of little account.

The language is a dialect of the Javanese; but the greater part of the natives profess the religion of their ancestors, and resemble the Hindoos in their looks, the mark on their forehead, and the suttees of their women. They are particularly addicted to the worship of Indra, Surya, and Vishnu. They appear to have ideas of a future life, but not as a state of retribution; conceiving immortality to be the lot of the rich, rather than of good men. The inhabitants of the interior possess a considerable knowledge of vegetable poisons, which they apply to their arrows, and then blow them through tubes of bamboo. Samanap is on the south-east coast: eighty-two miles distant is Bancallan, at which the sultan resides. Parmacassan is also a chief town of the interior. The island is said to be fertile, but thinly peopled.

MÆANDER, in ancient geography, a celebrated river of Asia Minor, rising near Celannæ. It flows through Caria and Ionia into the Ægean Sea between Miletus and Priene, after receiving the waters of the Marsyas, Lycus, Eudon, Letæus, &c. It is celebrated among the poets for its numerous windings, and hence windings in general are called *mæanders*.

MÆATTE, or **MÆATS**, an ancient people of Britain, who inhabited the middle part of the island. Their territories lay between the two Roman walls, and comprehended the country since called Northumberland, and the territories between it and the Firths of Clyde and Forth. Dunbriton or Dunbarton was their capital; and they had kings of their own till the Norman conquest. Such is Dr. Anderson's account of the *Mæatæ*; but others say their territories prehended only the district now called Lauderdale.

MÆCENAS (Caius Cilnius), the great friend and counsellor of Augustus, and the celebrated and liberal patron and protector of men of letters. He was descended from the kings of Etruria, but his immediate forefathers were only of the equestrian order. He is supposed to have been born in Rome, as his family lived there; but nothing is known of him previous to the death of Cæsar, A. U. C. 709; when Octavius Cæsar went to Rome to take possession of his uncle's inheritance, and Mæcenas became first publicly known. From that time he accompanied him through all his fortunes, so that Pædo Albinovanus called him Cæsar's right hand. In A. U. C. 710 Mæcenas distinguished himself by his courage and military skill at the battle of Modena, as he did afterwards at Philippi. After this last battle began his memorable friendship with Horace, who was a tribune

the army of Brutus, and was taken prisoner. Mæcenas recommended him to Augustus, who restored to him his estate with no small additions. The league made at Brundisium, between Antony and Augustus, was negotiated by Mæcenas on the part of the latter. (See *Ilor. Sat. v. 1.*) In A. U. C. 717, when Augustus and Agrippa went to Sicily to Sextus Pompeius by sea, Mæcenas, who accompanied them, was sent back to appease some commotions at Rome. After the battle of Actium he was placed over the military affairs of the empire; and, while Augustus was extinguishing the remains of the civil war in Asia and Egypt, Mæcenas detected a conspiracy to assassinate the emperor on his return to Rome, and put to death young Lepidus the founder of it. The civil wars being ended, Augustus returned to Rome; and from his time Mæcenas indulged himself in literary amusements. His house was open to all the learned of his time; Virgil, Horace, Propertius, Varius, Fuscus, Aristius, Asinius Pollio, and many others, whom it would be tedious to mention. All these dedicated their works, or parts of them, to Mæcenas, and celebrated his praises; and Plutarch says, even Augustus himself inscribed his commentaries to him and to Agrippa. Mæcenas continued in favor with Augustus to the end of his life, but not without interruption, the emperor forming an intrigue with Mæcenas's wife. It is to the honor of Augustus that he received the private admonitions of Mæcenas in the same friendly manner in which they were given, and he was not displeased with the liberty which he once took of sending to him a paper with these words written upon it, 'surge carnifex,' 'rise butcher,' while he was sitting on his judgment seat, and betraying revenge and impatience in his countenance. He was struck with the admonition, and left the tribunal without passing sentence of death on the criminals. Mæcenas died in the year 8 B. C. or 745 A. U. C., but at what age is not known. He is often called an old man by Pseudo-Albinovanus, a contemporary poet, whose elegy upon him is extant. He made Augustus his heir; and recommended his friend Horace to him. Though he was on the whole a virtuous character, yet he was very luxurious and effeminate. But his name will ever be venerated by men of letters, on account of the disinterested patronage and support he gave to all the wits and learned men of his time, whence his name has become almost an appellation for a patron of learning and genius. He was also an author himself; as he wrote, 1. A History of Animals: 2. A Journal of the Life of Augustus: 3. A Treatise on Precious Stones: 4. Octavia: and, 5. Prometheus, Tragedies: with several other works: but they are all lost.

MÆLSTROM, a dangerous whirlpool on the coast of Norway, near the island of Moskoe, whence it also has its name of Moskoe-strom. Betwixt Lofoden and Moskoe the depth of the water is between thirty-six and forty fathoms; but on the other side, towards Vega, the depth decreases so as not to afford a convenient passage for a vessel, without the risk of splitting on the rocks, which happens even in the calmest

weather. When it is flood, the stream runs up the country between Lofoden and Moskoe with a boisterous rapidity; but the roar of its impetuous ebb to the sea is scarcely equalled by the loudest and most dreadful cataclysms; the noise being heard several leagues off; and the vortices or pits are of such an extent and depth that, if a ship comes within the attraction, it is inevitably absorbed and carried down to the bottom, and there beaten to pieces against the rocks; and, when the water relaxes, the fragments thereof are thrown up again. But these intervals of tranquillity are only at the turn of the ebb and flood, in calm weather; and last but a quarter of an hour, its violence gradually returning. When the stream is most boisterous, and its fury heightened by a storm, it is dangerous to come within a Norway mile of it; boats, ships, and yachts, having been carried away, by not guarding against it before they were within its reach. It likewise happens frequently that whales come too near the stream, and are overpowered by its violence; and then it is impossible to describe their howlings and bellowsings in their fruitless struggles to disengage themselves. A bear once attempting to swim from Lofoden to Moskoe, with a design of preying upon the sheep at pasture in the island, afforded a similar spectacle; the stream caught him and bore him down, whilst he roared so terribly as to be heard on shore. Large stocks of firs and pine trees, after being absorbed by the current, rise again broken and torn to pieces. This plainly shows the bottom to consist of craggy rocks, among which they are whirled to and fro. This stream is regulated by the flux and reflux of the sea; it being constantly high and low water every six hours. In 1645, early in the morning of Sexagesima Sunday, it raged with such noise and impetuosity that, on the island of Moskoe, the very stones of the houses fell to the ground. When this whirlpool is agitated by a storm its vortex will reach vessels five or six miles distant.

MÆMACTERIA, sacrifices offered to Jupiter at Athens, in the winter month Mæmactærian. The god, surnamed Mæmactes, was entreated to send mild and temperate weather; he presided over the seasons and was the god of the air.

MÆMACTERION was the fourth month of the Athenian year, containing twenty-nine days, and answering to the latter part of our September and the beginning of October; so named from the festival Mæmacteria. It was called by the Bœotians Alalcomenius.

MÆNALUS, in ancient geography, a mountain of Arcadia, sacred to Pan, and greatly frequented by shepherds. It received its name from Mænalus a son of Lycaon. It was covered with pine trees, whose echo and shade have been greatly celebrated by all the ancient poets.

MÆONIA, or Mœonia, a country of Asia Minor, forming part of Lydia: viz. the neighbourhood of Mount Timolus, watered by the Pactolus. The rest, on the sea coast, was called Lydia. See **LYDIA**.

MÆONIDÆ, a name given to the Muses, because Homer, their greatest and worthiest favorite, was supposed to be a native of Mæonia.

MEONIDES, a surname of Homer, because, according to some writers, he was born in Mæonia; or because his father's name was Mæon.

MÆOTICA PALUS, **MÆOTICUS LACUS**, or **MÆOTIS PALUS** or **LACUS**, a large lake or part of the sea between Europe and Asia, at the north of the Euxine, with which it communicates by the Cimmerian Bosphorus. It was worshipped as a deity by the Massagetae. It extends about 390 miles from south-west to north-east, and is about six miles in circumference. It is now called the sea of Asoph or Zaback; and reaches from Crim Tartary to the mouth of the Don. See **ASOPH**.

MAESE, a considerable river of Europe, which has its source in the department of the Upper Marne, France, enters the Netherlands to the north of Charleville, and falls into the German Ocean below Rotterdam. In its course, of about 400 miles, it is joined by the Mouzon, Sambre, Ourthe, Lesse, and Ruhr, and various inferior streams; on its junction with the Waal, the united river takes the name of Merwe. It passes Verdun, Sedan, and Mezieres, in France; Charlemont, Namur, Huy, Liege, Maestricht, Ituremonde, Venloo, Grave, Gorcum, Dort, Rotterdam, and Briel, in the Netherlands; and exhibits in parts of its course, on a smaller scale, all the romantic scenery of the Rhine.

MÆSTLIN (Michael), in Latin, Mæstlinus, a celebrated German astronomer, born in the duchy of Wittenberg: but who spent his youth in Italy, where he converted Galileo from the Aristotelian to the Copernican system. He afterwards returned to Germany, and became professor of mathematics at Tübingen; where, among his other pupils, he educated the great Kepler. Mæstlin published many mathematical and astronomical works; and died in 1590.

MAESTRICHT, a large central town of the Netherlands, the capital of the province of Limburg, is situated on the Maese, near the junction of that river with the left bank of the Jaer. It stands in a valley surrounded with hills, in a fertile neighbourhood, and communicates with the suburbs of Wyck, on the opposite side, by means of a stone bridge 500 feet in length. The whole is tolerably well built, and the principal street, consisting chiefly of shops, extends from the bridge to the other extremity of the town. There are two good squares; and of the public buildings, the chief are the town-hall, and the church of St. Gervais; the college, once occupied by the Jesuits; the theatre, and the arsenal, are also worth a visit.

Maestricht is considered one of the strongest places in the kingdom of the Netherlands. It is surrounded by walls and ditches; but its strength consists in a number of detached bastions. It is also defended by the fortress of St. Pierre, on a neighbouring height. The ramparts and banks of the river above the town form pleasant promenades. The manufactures consist in leather, flannel, stockings, hardware, and coarse cloths. Here are also extensive breweries and distilleries. In a neighbouring mountain are some quarries, with subterraneous passages of considerable extent. From this town vessels start at stated hours to all the chief places higher

up on the Maese. It was besieged by the French in 1748, at the period of the peace of Aix-la-Chapelle, and taken by them in 1794. Population 18,500. Fourteen miles north by east of Liege, and fifty-six east of Brussels.

MAFFÆUS (John Peter), a learned Jesuit, born at Bergamo in 1536. He wrote a *Life of Ignatius Loyola*; a *History of the Indies*: and other works. He died at Tivoli in 1593.

MAFFÆUS (Vego), a Latin poet, born in Lombardy in 1407, greatly admired in his time. He wrote epigrams, and a humorous supplement to Virgil, which he called the *Thirteenth Book of the Æneid*, and which has been as humorously translated into English by Mr. Ellis. Maffæus wrote also some prose works. He was chancellor of Rome about the end of the pontificate of Martin V.; and died in 1458.

MAFFÆUS, or **MAFFEI** (Francis Scipio), a celebrated Italian poet, of an illustrious family, born at Verona in 1675. He distinguished himself by his valor at the battle of Donawert; and was a member of the academy of the Arcadi at Rome, and an honorary member of that of Inscriptions at Paris. He wrote many works in verse and prose, which are esteemed; particularly, 1. The tragedy of *Merope*: 2. *Ceremony*, a comedy: 3. A translation, into Italian verse, of the first book of Homer's *Iliad*. 4. Many other pieces of poetry, in a collection entitled *Rhyme and Prose*, 4to.: 5. *Verona Illustrata*: 6. *Istoria Diplomatica*; 7. *Scienza Cavalleresca*, an excellent work against duelling: 8. An edition of *Theatro Italiano*: 9. An edition of *Cassiodorus on the Epistles*, &c.: 10. *Gallie Antiquitates quædam Selectæ*: and several other works. These last six are in prose. He died in 1755.

MAGADA, in mythology, a title under which Venus was worshipped in Lower Saxony; where she had a famous temple, which was treated with respect even by the Huns and Vandals when they ravaged the country. It was destroyed by Charlemagne.

MAGADOXA, an inhospitable town on the eastern coast of Africa, capital of a country of the same name. It is watered by a large river, the course of which, as well as the whole district, is little known to Europeans. The inhabitants ever opposed a most determined resistance to the Portuguese; and their jealousy of the people has been extended to all Europeans. In 1707 the Albemarle, East Indiaman, sent a boat on shore, which was seized, and all attempts to recover it proved fruitless. The greater part of the inhabitants are Mahommedans, though there are said to be some Abyssinian Christians here. The town is known from the coast by three remarkable mosques which rise in its centre. A reef of coral, lined by a sand-bank, fronts this place. Long. 46° 30' E., lat. 2° 5' N.

MAGAS, from *μαγαδίζειν*, to sing or play in unison or octave, a musical instrument in use among the ancients. There were two kinds of Magades, the one a stringed instrument, formed of twenty chords arranged in pairs, and tuned to unison or octave so that they yielded ten sounds, the invention of which is ascribed by some to Sappho, by others to the Lydians, and by some to

Timotheus of Miletus. The other was a kind of flute, which at the same time yielded very high and very low notes. The former kind was much improved by Timotheus of Miletus, who is said to have been impeached, because, by increasing the number of chords, he spoiled and discredited the ancient music.

MAGAZINE, *n. s.* *Fr. magazin*; *Ital. magazzino*; *Arab. maksan*, a storehouse; *Heb. מִגְזָן*.—*Minshew*. A depository of treasures, provisions, or military stores; hence any repository or metaphorical storehouse of ideas, discoveries, &c.

If it should appear fit to bestow shipping in those harbours, it shall be very needful that there be a *magazine* of all necessary provisions and ammunitions.

Raleigh's Essay

Plain heroick magnitude of mind
Their armories and *magazines* contemn.

Millon.

If our passions are unruly, if our appetites are outrageous, if temptations be violent, and threaten to overbear us, it leadeth us to a full *magazine*, whence we may furnish ourselves with all manner of arms to withstand and subdue them.

Barrow.

Some o'er the public *magazines* preside,
And some are sent new forage to provide.

Dryden.

His head was so well stored a *magazin*, that nothing could be proposed which he was not master of.

Lacke.

Useful arms in *magazines* we place,
All ranged in order, and disposed with grace.

Pope.

Hast thou e'er scaled my wintry skies and seen
Of hail and snows, my northern *magazine*? *Young.*

When the stamp-officers demanded to stamp the last half sheet of the *magazines*, Mr. Cave alone defeated their claim, to which the proprietors of the rival *magazines* would meanly have submitted.

Johnson.

A **MAGAZINE**, in a fortified town, ought to contain stores of all kinds; i. e. not only arms, ammunition, and provisions, but materials and tools by which smiths, carpenters, wheel-wrights, &c., may make every thing belonging to the artillery; as carriages, waggon, &c.

A **MAGAZINE**, on ship-board, is a close room or storehouse, built in the fore or aft part of the hold, to contain the gunpowder used in battle. This apartment is strongly secured against fire, and no person is allowed to enter it with a lamp or candle: it is therefore lighted as occasion requires, by the candles or lamps in the light-room contiguous to it.

MAGAZINE, ARTILLERY. In a siege the magazine is about twenty-five or thirty yards behind the battery, towards the parallels, and at least three feet under ground, to hold the powder, loaded shells, port-fires, &c. Its sides and roof must be well secured with boards to prevent the earth from falling in: a door is made to it, and a double trench or passage is sunk from the magazine to the battery, one to go in and the other to come out at, to prevent confusion. Sometimes traverses are made in the passages, to prevent ricochet shot from plunging into them.

MAGAZINE, POWDER, is that where gunpowder is kept in very large quantities. Authorities differ greatly both with regard to the situation and construction; but all agree that they ought to

be arched and bomb-proof. In fortification: they are frequently placed in the rampart; but of late they have been built in different parts of the town. The first powder magazines were made with Gothic arches: but Mr. Vauban, finding them too weak, constructed them in a semicircular form, whose dimensions are sixty feet long within and twenty-five broad; the foundations are eight or nine feet thick, and eight feet high from the foundation to the spring of the arch; the floor is two feet from the ground, which keeps it from dampness. An engineer of great experience had observed that, after the centres of semicircular arches are struck, they settle at the crown and rise up at the haunches, even with a straight horizontal extrados, and still much more so in powder magazines, whose outside at top is formed like the roof of a house, by two inclined planes joining in an angle over the top of the arch, to give a proper descent to the rain.

MAGDALENA, a considerable river of South America, in New Grenada, rises in the province of Popayan, and runs a northerly course of 400 miles in the valley between the ridges of the Andes. It receives the tribute of numerous subordinate streams. A great traffic is carried on throughout its course by means of large flat-bottomed boats, but the navigation is exceedingly irksome, not only on account of the heat, but through the great number of mosquitoes with which the river is infested. On its entrance into the sea it forms a small isle or rock, called the Isla Verde. The waters do not embody themselves with the sea for a distance of more than twenty leagues; and as far as this they are perfectly pure and sweet to the palate. Its mouth is in lat. 11° 2' N.

MAGDALENE'S CAVE, a cave of Germany, in Carinthia, ten miles east of Gortz. It appears like a chasm in a rock, and at the entrance torches are lighted to conduct travellers. It has several divisions, with a vast number of natural pillars, white as snow, and almost transparent, which give it a beautiful appearance. The bottom is also formed of stalactite, so that it has been likened to the ruins of an enchanted castle, surrounded with magnificent pillars, some entire and others broken.

MAGDALENETTES, a name given to divers communities of nuns, consisting generally of penitent courtizans. Such are those at Metz, established in 1452; those at Paris, in 1492; those at Naples, first established in 1324, and endowed by queen Sancha; and those of Rouen and Bourdeaux, which had their original among those of Paris in 1618. In each of these monasteries there are three kinds of persons and congregations: 1. Those who are admitted to make vows, and who bear the name of St. Magdalen; 2. The congregation of St. Martha, composed of those whom it is not judged proper to admit to vows; 3. The congregation of St. Lazarus, composed of such as are detained there. The religious of St. Magdalen at Rome were established by pope Leo X. Clement VIII. settled a revenue on them; and farther appointed that the effects of all public prostitutes, dying intestate, should fall to them; and that the tes-

taments of the rest should be invalid unless they bequeathed a portion of their effects, at least a fifth part, to them !

MAGDEBURG, a government of the Prussian States in Lower Saxony, comprising a part of the Old Mark on the left side of the Elbe, the principality of Halberstadt, the abbey of Quedlinburg and its domain, Wernigerode, Schauen, and the bailiwicks of Barby, Gommern, and Klotze : or the fifteen circles of

Magdeburg,	Halberstadt,
Kalbe,	Ocherslebeh,
Wanzleben,	Osterwick,
Wolmerstadt,	Stendal,
Neuhaldensleben,	Salzwedel,
Jerichow Loburg,	Osterburg,
—— Genthin,	Gardeleben.
Aschersleben,	

The old duchy should not be confounded with the province of this name, since, though a part of it is included in the latter, another part belongs to the Prussian province or government of Merseburg. The area of the duchy was 2060 square miles; its population 290,000: that of this province 4400 square miles, and the population 446,000.

It is fertile in corn, which is exported in considerable quantity : flax, hemp, and chicory, for making coffee, are also raised to some extent; wood, however, is scarce. The principal minerals are coals in various parts; metals in the mountains of the Harz; salt; and porcelain earth. The silk-worm has been introduced here with some success; and, although woollen and linen constitute the chief fabrics, silk has become, in consequence, a considerable manufacture. The Elbe traverses this government from north to south. Magdeburg is the chief emporium of trade.

MAGDEBURG, the capital of the above government, and formerly of all Germany, is a fortified city of great trade and strength, and very ancient. Its name signifies the maiden city; which, some imagine, took its rise from an ancient temple of Venus, which stood here. The founder of the city is said to have been Otho I., or his empress Editha, daughter of Edmund I. of England. Otho also founded a Benedictine convent, which he afterwards converted into an archbishopric, of which the archbishop was a count palatine, and had great privileges. The city is pleasantly situated amidst fruitful plains on the banks of the Elbe. It has suffered greatly by fires and sieges; but by none so much as that in 1631, when count Tilly took it by storm, plundered, and burnt it, except the cathedral and convent. Of 40,000 burghers, not above 800 escaped. The soldiers committed the most shocking barbarities. It was formerly one of the Hanse and imperial towns. Editha, on whom it was conferred as a dowry, among many other privileges, procured it the grant of a yearly fair.

The city is now populous, large, and well-built, particularly the broad street and cathedral square, being divided into five parts; the Old Town; the Neumarkt; the Friedrichstadt, or tower fort; the New Town; and the quarter called Sudenburg, which have their own magis-

trates, and are treated by the government as separate towns. The whole contained in 1816 a population of 30,250, of whom 28,000 were Protestants, the rest Catholics and Jews. The New Town lies on the Elbe, to the north-east of the Old Town, from which it is separated by fortifications. The principal squares are the cathedral square; the old market, with a statue of the emperor Otho the Great; and the prince's market, adjoining the public walks. The exchange, the court-house, the ducal palace, the regency house, government house, and the new and old arsenals, are the most remarkable public buildings. The cathedral is of freestone, with two spires. Magdeburg has also three houses of council or assembly, a Catholic church in the citadel, twelve Protestant churches, one Catholic and three Protestant convents, five hospitals, two orphan-houses, a house of correction, and workhouse. Principal public walks are the prince's rampart, the freemasons' garden, and the banks of the Elbe. Here are courts of justice for Prussian Saxony; the offices for the civil affairs of the government of Magdeburg; a Protestant consistory; the Lutheran establishment of Notre Dame, which serves as a gymnasium; a medical board; cathedral school, and town gymnasium; two mercantile schools; and a school of midwifery. Magdeburg has also various public libraries, literary clubs, and collections of paintings. It is accounted on the whole a pleasant residence. A German theatre belongs to the town, and another to a private society. The environs are also pleasant. At a short distance from the town is the Bergen monastery, and the salt works of Schoenebeck, producing about 30,000 tons annually. Like other towns in the north of Germany, Magdeburg contains extensive breweries and distilleries. The manufactures of the place derived, in the seventeenth century, much advantage from the number of Protestant emigrants who settled here from France and the Low Countries. The largest are of woollen and linen, stockings, hats, leather, tobacco, wax, and soap. Magdeburg was entered by the French in 1806, and annexed to the kingdom of Westphalia. In 1813, on the retreat of the French from Germany, it was occupied by a strong garrison, and did not surrender till the fall of Buonaparte. It is seventy-five miles W. S.W. of Berlin, sixty-two N. W. of Leipsic, and 120 S. S. E. of Hamburg.

MAGDOLUM, or **MAGDALUM**, in ancient geography, a town of Lower Egypt, twelve miles south of Pelusium (Herodotus, Antonine); reckoned the Migdol or Magdol of Jeremiah.

MAGELHAENS (John Hyacinth de), a learned Portuguese ecclesiastic, who was a member of several foreign academies, as well as F.R.S. London. He came to London, and resided here many years, till his death in 1790. He published several useful tracts on experimental philosophy.

MAGELLAN (Ferdinand), a celebrated Portuguese mariner in the sixteenth century. He entered into the service of the emperor Charles V., and sailed from Seville with five vessels in 1519, when he discovered and passed through the straits to which he gave name, and sailed through the

South Sea to the Ladrone Islands, where, according to some, he was poisoned in 1520; though others say that he was killed in a mutiny of his people in the island of Mutan, on account of his severity. His voyage round the world has been often printed in English.

MAGELLAN, STRAITS OF, form a passage between the Atlantic and Pacific oceans, at the southern extremity of the continent of America, upwards of 300 miles in length: that is, reckoning from Cape Virgin in the Atlantic, to Cape Desire in the Pacific Ocean. In some places they are several leagues over, in others not more than half a league. These straits were discovered, and passed through, in the year 1520, by Ferdinando Magellan, a Portuguese in the service of the crown of Spain, and hence derive their name. Though they possess many harbours affording wood, water, and fish, the heavy gales of wind that prevail here, and the strength of the currents, have caused them to be almost entirely abandoned as a route between the two oceans, ships finding it both more safe and more expeditious to double Cape Horn. Westerly winds are the most prevailing, while the current usually sets from the Atlantic: at the entrance the tide rises twenty-eight feet.

MAGELLANIC CLOUDS, whitish appearances like clouds, seen in the heavens towards the south pole, and having the same apparent motion as the stars. They are three in number, two of them near each other. The largest lies far from the south pole; but the other two are about 11° distant. Boyle supposes that, if these clouds were seen through a good telescope, they would appear to be multitudes of small stars, like the milky way.

MAGGEROE, or Bare Island, a large island on the coast of Lapland, on which is the North Cape, thus named by Burroughs in 1556. It is separated from the main by a sound of the same name. The cape is an enormous block of granite, projecting far into the sea, and which, being exposed to all the fury of the waves, crumbles away continually. 'Here,' says an intelligent traveller, 'every thing is solitary, every thing is sterile, every thing is sad and despondent; the shadowy forest no longer adorns the brow of the mountain; the singing of the birds, which enlivens even the woods of Lapland, is no longer heard in this scene of desolation; the ruggedness of the dark gray rock is not covered by a single shrub; the only music is the hoarse murmuring of the waves, ever and anon renewing their assaults on the huge masses that oppose them. The northern sun, creeping at midnight along the horizon of the immeasurable ocean, at the distance of five diameters, in apparent contact with the skies, forms the grand outline of the sublime picture presented to the astonished spectator. The incessant cares and pursuits of anxious mortals are recollected as a dream, the various forms and energies of animated nature are forgotten, the earth is contemplated only in its elements, and as constituting a part of the solar system.' Lat. 71° 11' N., long. 26° 0' 45" E.

MAGGI, or **MAGIUS** (Jerome), one of the most learned men of the sixteenth century, was born at Anghiari in Tuscany. He applied him-

self to the sciences, and distinguished himself so much in the art of war, that the Venetians sent him into Cyprus as judge of the admiralty. When the Turks besieged Famagusta, he invented mines and machines for throwing fire, by means of which he destroyed all the works of the besiegers, and in an instant overthrew what had cost the Turks infinite labor. But they obtained revenge; for, taking the city in 1571, they plundered his library, carried him loaded with chains to Constantinople, and treated him in the most barbarous manner. He nevertheless, after passing the whole day in the meanest drudgery, spent the night in writing. He composed, from memory alone, treatises filled with quotations, which he dedicated to the Imperial and French ambassadors. These ministers, moved by compassion for this learned man, resolved to ransom him; but, while they were treating for his delivery, Maggi made his escape to the imperial ambassador's house; when the grand vizier, enraged at his flight, seized, and caused him to be strangled in prison in 1572. His principal works are, 1. A Treatise on the Bells of the Ancients. 2. On the Destruction of the World by Fire. 3. Commentaries on Æmilius Probus's Lives of Illustrious Men. 4. Commentaries on the Institutes. 5. A Treatise on the Wooden Horse. These works are written in elegant Latin. He also wrote 6. A Treatise on Fortification, in Italian; and 7. A book on the Situation of Ancient Tuscany.

MAGGIORE, **LAGO**, a lake of Upper Italy, separating the Austro-Italian government of Milan, from the states of Sardinia, and extending from Sesto northwards to Locarno. Its length is upwards of thirty miles, its breadth between seven and eight; its medium depth 160 feet, and its elevation above the level of the sea 1800 feet. It is traversed by the river Ticino; and its waters, which are clear as crystal, contain various kinds of fish; its banks abound in picturesque objects of every kind, and are adorned with a number of villages and towns. It contains several small islands, the most remarkable of which, the Borromeo, are the admiration of all travellers.

MAGGOT, *n. s.* } Sax. *magðe*, *mozðe*; Wel.

MAGGOTTY, *adj.* } *mageod*, *magrod*; Goth. *mad-ka*. A small worm or grub; any embryo: any whimsey or fancy. The metaphorical use is low.

Taffata phrases, silken terms precise,
Three-piled hyperboles, spruce affectation,
Figures pedantical; these summer flies
Have blown me full of maggot ostentation.

I do forswear them.

Henceforth my wooing mind shall be exprest
In russet yeas, and honest kersy noes.

Shakspeare.

To reconcile our late dissenters,
Our brethren though by other venters,
Unite them and their different maggots,
As long and short sticks are in faggots.

Hudibras.

Out of the sides and back of the common caterpillar we have seen creep out small maggots.

Ray on Creation.

To pretend to work out a neat scheme of thoughts with a maggotty unsettled head, is as ridiculous as to think to write straight in a jumbling coach. *Norris.*

From the sore although the insect flies,
It leaves a brood of maggots in disguise. *Garth.*

She pricked his *maggot*, and touched him in the
tender point; then he broke out into a violent pas-
sion. *Arbutnot.*

For bankrupts write when ruined shops are shut,
As *maggots* crawl from out a perished nut:
His hammer this, and that his trowel quits,
And, wanting sense for tradesmen, serve for wits.

Young.

MAGGOT, or the fly-worm, is bred in flesh, from the egg of the great blue flesh-fly. Notwithstanding the distaste for this animal, its anatomy is worth attending to; and may serve as a general history of the class of worms produced from the eggs of flies. It is white and fleshy; its body is composed of a number of rings, like the bodies of caterpillars, and is capable at pleasure of assuming different figures, more or less extended in length, and consequently more or less thick. Although it has no legs, it is able to move itself very swiftly; and, in its first attempt to move its body, is extended to its greatest length, and assumes something of the figure of a pointed cone. The pointed part of the cone is the head of the animal, and is not separated from the next ring by any deeper furrow than the rest of the rings are from one another. Sometimes two short horns are thrust out from the head; but more generally two scaly hooks are observable: these are, however, sometimes hid, and have each a case or sheath, into which the animal can retract them at pleasure. These hooks are bent into an arch, the concavity of which is towards the plane on which the creature is placed; and they are thickest at their insertion in the head, and thence diminish gradually, till they terminate in a fine sharp point. They are placed parallel, and can never come together, and therefore cannot serve in the place of teeth for grinding the food; but merely to pull and sever it in pieces, that it may be of a proper size for the mouth. The maggot has also a kind of dart, at an equal distance between these hooks, about one-third of their length. This also is brown and scaly like them; it is quite straight, and terminates in a fine point. The hooks have two scaly thorns at their points; and this dart seems intended, by reiterated strokes, to divide and break the pieces of flesh these have separated from the rest into smaller parts. Immediately below the apertures for the egress of the hooks is placed the mouth, which the creature does not show unless pressed, when something like a tongue appears. The hooks supply the place both of teeth and legs; as by fastening these hooks into the substance on which it is placed, and then drawing up its body to it, it pulls itself along. The back lowers itself by degrees as it approaches the extremity of the belly; and, near the place where the back begins to lower itself, are placed the two principal organs of respiration; which are two small roundish brown spots, easily distinguishable by the naked eye, as the rest of the body is white. Viewed through a microscope, each of these spots appears to be a brown circular eminence raised a little above the rest of the body. On each of them there are also three oblong oval cavities, of the shape of button-holes, each situated in a parallel

direction to each other; and their length nearly perpendicular to that of the body of the animal. These apertures admit the air. It has six of these, three on each side of its body. The great transparency of its body shows that it has on each side a large white vessel running the whole length of the body. These vessels are most distinct towards its hinder part; and they terminate each in the brown spot above mentioned: hence they seem to be the two principal tracheæ. The ramifications of these are very beautiful in this creature, especially on its belly: but no vessel analogous to the great artery in the caterpillar class can be discovered in these. See ENTOMOLOGY.

MAGI, or MAGIANS, an ancient religious sect in Persia, and other eastern countries, who maintained that there were two principles, one the cause of all good, the other the cause of all evil: and, abominating the adoration of images, they worshipped God only by fire; which they looked upon as the brightest and most glorious symbol of Oromasdes, or the good god; as darkness is the truest symbol of Arimanius, or the evil god. This religion was reformed by Zoroaster, who maintained that there was one supreme independent being; and under him two principles or angels, one the angel of goodness and light, and the other of evil and darkness: that there is a perpetual struggle between them, which shall last to the end of the world; that then the angel of darkness and his disciples shall go into a world of their own, where they shall be punished in everlasting darkness; and the angel of light and his disciples shall go into a world of their own, where they shall be rewarded in everlasting light. The priests of the magi were the most skilful mathematicians and philosophers of the ages in which they lived, inasmuch that a learned man and a magian became equivalent terms. The vulgar looked on their knowledge as supernatural; and those who pretended to a knowledge of sorcery, divination, &c., taking upon themselves the name of magians, originated the signification which the word magician now bears among us. This sect still subsists under the denomination of gaus, or guebres, in Persia, where they watch the sacred fire with the greatest care, and never suffer it to be extinguished. They are divided into three classes, of which the first and most learned neither eat nor kill animals; but adhere to the old institution of abstaining from all living creatures. The magi of the second class refrain only from tame animals; nor do the last kill all indifferently, it being the firm and distinguishing settled notion of them all, *την μεταβολήν εἶναι*, that there is a transmigration of souls. See GUEBRES.

MAG'IC, *n. s. & adj.* } Lat. *magia, magicus*,
MAG'ICAL, *adj.* } from Gr. *μαγος*; Pers.
MAG'ICALLY, *adv.* } *majus, mugh* (a magi-
MAGIC'IAN, *n. s.* } cian). The pretended
art of influencing or putting in action spirits,
evil or good; sorcery; enchantment: the magician
was the operator in this far famed art.

Doun of his hors Aurelius light anon,
And forth from this *magician* is gon
Horne to his hous, and made hem wel at ese;
Hem lacked no vitaille that might hem plesse.
Chaucer. Cant. Tales.

I'll humbly signify what, in his name,
That magical word of war, we have effected.

Shakspeare.

She once being looft,
The noble ruin of her *magick*, Antony,
Claps on his sea-wing.

Shakspeare. Antony and Cleopatra.

What black *magician* conjures up this fiend,
To stop devoted charitable deeds?

Shakspeare.

The writers of natural *magick* attribute much to the virtues that come from the parts of living creatures, as if they did infuse immaterial virtue into the part severed.

Bacon.

In the time of Valens, divers curious men, by the falling of a ring, *magically* prepared, judged that one Theodorus should succeed in the empire.

Camden.

If they savour not strong of *magical* receipts, let the indifferent judge.

Bp. Hall.

Pharaoh's curiosity carries him away quite from the sense of the judgment: he would rather send for his *magicians* to work feats, than to humble himself under God for the removal of this plague.

Id.

And the brute earth would lend her nerves, and shake,

'Till all thy *magick* structures, reared so high,
Were shattered into heaps.

Milton.

An old *magician*, that did keep
The Hesperian fruit, and made the dragon sleep;
Her potent charms do troubled souls relieve,
And, where she lists, makes calmest souls to grieve.

Waller.

They beheld unveiled the *magical* shield of your Ariosto, which dazzled the beholders with too much brightness; they can no longer hold up their arms.

Dryden.

There are millions of truths that a man is not concerned to know; as whether Roger Bacon was a mathematician or a *magician*.

Locke.

By the use of a looking-glass, and certain attire made of cambrick upon her head, she attained to an evil art and *magical* force in the motion of her eyes.

Tutler.

What charm, what *magick*, can over-rule the force of all these motives?

Rogers.

Like castles built by *magick* art in air,
That vanish at approach, such thoughts appear.

Granville.

Every movement of the theatre, by a skilful poet, is communicated, as it were, by *magic* to the spectators.

Hume.

MAGIC, Gr. ΜΑΓΙΑ, in its ancient sense, is the science or discipline and doctrine of the magi, or wise men of Persia. See MAGI. The origin of magic and the magi is ascribed to Zoroaster. Salmasius derives the very name from Zoroaster, who, he says, was surnamed Mog, whence Magus. Others make him only the restorer and improver of the Persian philosophy, alleging, that many of the Persian rites in use among the magi were borrowed from the Zabii among the Chaldeans, who agreed in many things with the magi of the Persians; whence some make the name magus common both to the Chaldeans and Persians.

In a modern sense, magic is a science which teaches to perform wonderful and surprising effects. The word originally carried with it a very innocent, nay laudable meaning; being used purely to signify the study of wisdom, and the more sublime parts of knowledge; but as the ancient magi engaged also in astrology, divination, sorcery, &c., the term magic in time became odious, and was only used to signify an unlawful

and diabolical kind of science, depending on the assistance of the devil and departed souls. Agrippa divides magic into three kinds; viz. natural, celestial, and ceremonial or superstitious.

MAGIC, NATURAL, is, in fact, no more than the application of natural active causes to passive things or subjects; by means of which many surprising, but yet natural, effects are produced.

MAGIC, CELESTIAL, borders on judiciary astrology; it attributes to spirits a kind of rule, or dominion over the planets: and to the planets a dominion over men; and on these principles builds a ridiculous kind of system. See ASTROLOGY.

MAGIC, SUPERSTITIOUS, or GEOTIC, consists in the invocation of devils or demons; its effects are usually evil and wicked, though very strange, and seemingly surpassing the powers of nature: they are supposed to be produced by virtue of some compact, either tacit or express, with evil spirits; but the truth is, these supposed compacts have not the power that is usually imagined; nor do they produce half those effects ordinarily ascribed to them.

MAGIC LANTERN. See OPTICS.

MAGIC SQUARE, a square figure, formed of a series of numbers in mathematical proportion; so disposed in parallel and equal ranks, as that the sums of each row, taken either perpendicularly, horizontally, or diagonally, are equal. Let the several numbers which compose any square number (for instance, 1, 2, 3, 4, 5, &c. to 25, inclusive, the square number), be disposed, in their natural order, after each other in a square figure of twenty-five cells, each in its cell; if now you change the order of these numbers, and dispose them in the cells in such manner as that the five numbers which fill an horizontal rank of cells, being added together, shall make the same sum with the five numbers in any other rank of cells whether horizontal or vertical, and even the same number with the five in each of the two diagonal ranks: this disposition of numbers is called a magic square, in opposition to the former disposition, which is called a natural square: Thus

Natural Square.

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

Magic Square.

16	14	8	2	25
3	22	20	11	9
15	6	4	23	17
24	18	12	10	1
7	5	21	19	13

Moschopolus, a Greek author of no great antiquity, is the first that appears to have spoken of magic squares; and, from the age in which he lived, there is reason to imagine he did not look on them merely as a mathematician. However, he has left us some rules for their construction. But, as magic squares have not hitherto been found of importance in mathematics, we shall refer to the works of Bachet, Frenicle, Poignard, and De La Hire, for the various me-

thods of constructing these curious arrangements of numbers. The latest writer upon the subject was Dr. Franklin, who constructed what he called a magic square of squares, and a magic circle of circles, which may be seen in the works of the ingenious Mr. Ferguson. We are favored with the following original methods of filling a magic square by an ingenious correspondent:—

The following method of filling up a magic square of odd numbers, i. e. containing nine, twenty-five, forty-nine, eighty-one, 121, &c. cells, after numbers have been placed by A in any two cells, has never before been published. It also possesses the new properties of admitting of fractional, and of plus and minus numbers.

Fig. 1.

8	1	6
3	5	7
4	9	2

Fig. 2.

17	24	1	8	15
23	5		14	16
4	6	13	20	22
10	12	19	21	
11	18	25		

Fig. 3.

11		27

Fig. 4.

31	3	23
11	19	27
15	35	7

Fig. 5.

		7
6		

Fig. 6.

7½	5½	7
6	6½	7½
6½	8	5½

Fig. 7.

		11
2		

Fig. 8.

14	vii	8
i	5	11
2	17	iv

Fig. 1 contains nine cells: fig. 2 twenty-five. In both the ratio is 1; that is to say, the progression is by one at a time from 1 to 9, or from 1 to 25. And they both show where the lowest, the intermediate, and the highest numbers must be placed.

The order of progression is diagonal, e. g. imagine these two figures to be linen or cotton prints, and then place duplicates, triplicates, &c., of fig. 1, over and under it, and at each side, &c.; and do the same by No. 2. You will find that, in fig. 1, 2 is the diagonal of 1, and 3 of 2; and that, in fig. 2, 2 is the diagonal of 1, 3 of 2, 4 of 3, and 5 of 4. The diagonal course will be equal to the number of cells in a row. At the end of each course, place the next number in the cell below the last number of the course, and begin a new course, and so on till the square is filled up. Thus, in fig. 2, 6 will be under 5, 11 under 10, 16 under 15, and 21 under 20; and 6, 11, 16, and 21, will begin new courses.

RULE.—When A has inserted his two numbers, divide their difference by the difference between the two cells. If it be a three-rowed square, fig. 1 (which you must have at hand for inspection) will show the number of A's two

cells; or, if a five-rowed square, fig. 2 will do the same. If it be a seven-rowed square, you must be prepared with that square filled up in a similar manner, and so on for a square containing any odd number of rows, for similar inspection. Having divided as above, the quotient will be the ratio.

Example 1.—Fig. 3 is a three-rowed square, containing A's two numbers. The difference of numbers is 16; by inspecting fig. 1 you will find the difference of cells to be that of 3 and 7, which is 4; the quotient, or ratio, therefore, will be 4. By inspecting fig. 1 you will also see that cell 3 is the end of the course. You must therefore add 4 to 11, and place 15 in cell 4, 19 in cell 5, and 23 in cell 6, as in fig. 4. In this example the numbers are all integers, and the sum 57, or the central number multiplied by the number of cells in each row.

Example 2.—In fig. 5 the difference of numbers is 1, which divide by the difference between the cells, i. e. between 3 and 6, which is 3. The quotient or ratio will be 0½. Fill up, therefore, as in fig. 6. This example contains fractional numbers. The sum is 20, or $3 \times 6\frac{2}{3}$.

Example 3.—In fig. 7 the difference of numbers is nine; of cells three; and the quotient or ratio three. But, in filling up and diminishing from cell 4 to cell 3, you will be obliged to put i. minus into cell 3, iv. minus into cell 2; and vii. minus into cell 1. These minus numbers, in reckoning the number in each row, must be subtracted. In this example the sum is 15. See fig. 8.

REMARKS.—1. Every example admits of being filled up two different ways, e. g. in example 1, 27 may be considered as placed either in cell 7 or in cell 1.

2. As you have your choice of two ways, try both, and choose that which is the most easy and natural.

3. The central number being known, the sum will be known by multiplying by the number of cells in a row. When, therefore, you have half filled up a three-rowed square, you may finish it by placing in the remaining cells the numbers which will complete the sum.

4. Do not let A see your process, but perform it on a separate paper.

MAGICAL DRUM, an instrument of superstition used in Lapland, and made of beech, pine, or fir, split in the middle, and hollowed on the flat side, where the drum is to be made. The hollow is of an oval figure; and is covered with a skin clean dressed, and painted with figures of various kinds, such as stars, suns and moons, animals and plants, and even lakes and rivers; and, since the preaching of Christianity among them, the acts and sufferings of our Saviour and his apostles are often added among the rest. All these figures are separated by lines into three regions or clusters. There is besides these parts of the drum, an index and a hammer. The index is a bundle of brass or iron rings, the largest of which has a hole in its middle, and the smaller ones are hung to it. The hammer or drum-stick is made of the horn of a rein deer; and with this they beat the drum so as to make these rings move, they being laid on the top for that pur

pose. In the motion of these rings, about the pictures figured on the drum, they fancy to themselves some prediction in regard to the subject of their enquiries.

MAGINDANAO, or MINDANAO. The name is a compound of *Mag*, related to—in, country—and *danao*, a lake, signifying Relations living in a country round a lake. It is the third division of the Philippine Islands, being next to *Luconia* in extent: it has nearly 300 leagues of circuit, but very irregular, being deeply indented by a gulf, enclosed by a peninsula on the west. The interior is occupied by lofty ridges of mountains, separated by plains and covered with forests of teak and poon. Its minerals are little known, but some gold dust is brought to market and talc is abundant. The island is profusely watered, containing more than twenty navigable rivers, and near the south is a lake sixty leagues in circuit which discharges its waters by a large river. The soil is extremely fertile, producing rice and sago in abundance, and a species of cinnamon, but inferior to that of Ceylon, is indigenous. The forests swarm with wild horses, bullocks, buffaloes, goats, and hogs. The sea-coasts are occupied by Malay Mahomedans, who speak the Bissayan dialect as well as the Malay. In the interior is a race of negroes named *Haraforas*, who have little communication with the Malays.

The island is politically divided into three sovereignties. The first, under the sultan, is the most considerable, and occupies the south-east portion of the island; his residence is at *Selangan*, on the east shore of the Great *Illano Bay*, and on the large river *Pelangy*, which empties itself by two branches, whose mouths are crossed by bars with two and three fathoms at high water. The town consists of about 100 houses, with a fortified palace of the sultan, and several wooden castles of the datus or nobles. The passage of the river is also defended by a large palisaded fort with many cannon and swivels. A number of Chinese are settled here. This is one of the chief residences of the pirates, and where they build their vessels.

The second sovereignty of the island is the *Illano* country, and is of a feudal nature, being under many chiefs. The third and smallest portion, chiefly comprehending the sea coasts of the western peninsula, is subject to the Spaniards, whose principal establishment is *Samboangan*, on the south-west extremity of the peninsula. It consists of a fort of masonry surrounded by a rampart of earth; its ordinary garrison is about 150 men: it seems to be of little other use to the Spaniards than as a place of transportation of their convicts from the other islands.

Misamis, the second Spanish establishment, is on the north side of the island, and has a garrison of 300 men. *Correga*, the third and last, is an insignificant post on the east.

Hindustan cloths sell well here, especially long cloth; white, blue, and red handkerchiefs, of all kinds; chintz with dark grounds; *Surat* goods of most sorts, particularly *pittolies*; and all kinds of European cutlery. Chinese articles, carried from *Sooloo* to *Magindanao*, are kangans, leads, gongs, china basins with red edges, deep

brass plates five in a set, deep saucers three and four inches diameter, brass wire, and *Tromp*. Gold is produced in many parts; besides which wax, rice, cassia, rattans, tobacco, and pepper, are exported.

The sultan is the head of the state, and next to him is his successor. There are various other state functionaries, with extensive powers; six judges named by the sultan; and six *ambajajahs*, or assertors of the people's rights. Their office is hereditary. The sultan's vassals possess great estates. They are sometimes Mahomedans, though they are mostly native inhabitants. The latter only may be sold with the lands. They are more oppressed than the Mahomedans, who are bound to accompany their lords; but the *Haraforas*, being in a great measure excused from such attendance, pay certain yearly taxes which are not expected from the Mahomedan vassals.

The inhabitants of *Magindanao* are all addicted to piracy, and frequently extend their depredations to *Java*, *Sumatra*, *Borneo*, and *Celebes*. When the prow is large they strike the mast and hide among the rocks or up a creek. Canoes are then detached to plunder, and the proceeds are brought to the large vessel. When they attack the Dutch possessions they will make slaves even of persons of their own religion. Their intercourse with Europeans has given the inhabitants a knowledge of some of the European arts: in others they are remarkably deficient, their blacksmiths being incapable of making any thing more complicated than a common nail. Their culinary utensils they procure from China. The male inhabitants pluck their beards out with pincers. They are remarkably fond of cock-fighting. The women, who are of stately appearance and manners, do not suffer the same strict confinement as in other Indian countries, being frequently present at audiences and public exhibitions. At the age of thirteen they have their teeth filed thin, and stript of the enamel, that they may be stained with black. The ladies visit each other with great ceremony on this occasion, and with a numerous train of attendants, who, as they approach the house, notify their approach by a disagreeable howl. They amuse themselves with playing at draughts, dancing, &c., on which occasion they move slowly round in a circle. The dress of the women consists of a jacket, common to both sexes, and a kind of petticoat. The men wear, besides the jacket, a cloth bunc about the middle, coming up between the thighs. They tie up their hair in a singular manner fixing it round a piece of wood five or six inches in diameter. The women tie their hair behind, and plait it like the *Gentoo* dancing girls. They also wear brass rings round the wrist, knee, and on each arm and leg. They are fond of wearing beads about their necks, and brass rings or beads dangling at their ears, which in both sexes are very wide and long.

Magellan first touched at this island on *Easter day*, in 1521, and took possession of it in the name of *Charles V.* of Spain. The Spaniard afterwards made settlements here, and subdued the northern coast, but never made any farther

progress: they now with difficulty retain the feeble colonies they planted. It was visited by the Portuguese about 1537, and by the Dutch in 1607, 1646, and 1627. In 1689 an envoy was sent by the Dutch East India Company, for permission to build a fort, which was refused. The Dutch made a sort of survey of it in 1693, and it was much frequented by English piratical vessels, which swarmed at this period in the Indian seas. The intercourse of the British here has not been frequent, and generally not very amicable. In 1758 the pirates from this island had the temerity to attack the settlement at Prince of Wales's Island, but were repulsed with loss; and in 1798 the sultan seized a boat's crew belonging to the *La Sylville* frigate, which had been sent on shore. They were afterwards liberated, but not until a ransom of 4000 dollars had been paid. In 1803 they fitted out a fleet of forty prows, with the intention of invading the India Company's settlements in Celebes, but were met by the *Swift* cruizer, and defeated. Long. $119^{\circ} 30'$ to $125^{\circ} E.$, lat. $5^{\circ} 40'$ to $9^{\circ} 55' N.$

MAGISTERIAL, *adj.* Latin *magister*, **MAGISTERIALLY**, *adv.* } *magistratus*; Fr. *magistrat*; Ital. *magistrato*. **MAGISTERIALNESS**, *n. s.* } *magistrato*. **MAGISTRACY**, *adv.* } *magistrato*. **MAGISTRALLY**, *adv.* } or appertaining to a magistrate; hence **MAGISTRATE**, *n. s.* } *magistrato*. lofty; arrogant: magistracy, the office or dignity of a public administrator of the law: magistrate, the officer so administering the law: **magistrally** is an abbreviation of **magisterially**.

They chuse their *magistrate*!
And such a one as he, who puts his shall,
His popular shall, against a graver bench
Than ever frowned in Greece.

Shakespeare. Coriolanus.

You share the world for *magistral*ci, priesthoods,
Wealth and felicity, amongst you, friends.

Ben Jonson.

Such a government is maternal, not *magisterial*.

King Charles.

I treat here of those legal punishments which *magistrates* inflict upon their disobedient subjects.

Decay of Piety.

Ye that are *magistrates*, not for God's sake only, but for your king's sake, whose deputies ye are, as he is God's;—rouse up your spirits, awaken your Christian courage, and set yourselves heartily against the traitorly sins of the times.

Bp. Hall.

What a presumption is this for one, who will not allow liberty to others, to assume to himself such a licence to controul so *magisterially*!

Brinsford against Hobbes.

We are not *magisterial* in opinions, nor, dictator-like, obtrude our notions on any man.

Broune's Vulgar Errors.

He had no other intention but to dissuade men from *magistracy*, or undertaking the publick offices of state.

Broune.

He bids him attend as if he had the rod over him; and uses a *magisterial* authority while he instructs him.

Dryden.

Pretences go a great way with men that take fair words and *magisterial* looks for current payment.

L'Estrange.

Those men are but trepanned who are called to govern, being invested with authority, but bereaved of power; which is nothing else but to mock and betray them into a splendid and *magisterial* way of being ridiculous.

South.

A downright advice may be mistaken, as if it were spoken *magisterially*. *Bacon's Advice to Villiers.*

Peremptoriness is of two sorts; the one a *magisterialness* in matters of opinion, the other a positiveness in relating matters of fact: in the one we impose upon men's understandings, in the other on their faith.

Government of the Tongue.

Some have disputed even against *magistracy* itself.

Atterbury.

The punishment of evil-doers, and the praise of them that do well, is the true intent of *magistracy*, and will be the care of them who rightly understand the nature and honour of their office.

Doddridge.

Duelling is not only an usurpation of the divine prerogative, but it is an insult upon *magistracy* and good government.

Clarissa.

Unless a love of virtue light the flame,
Satire is, more than those he brands, to blame;
He hides behind a *magisterial* air
His own offences, and strips others bare.

Cowper.

MAG'ISTERY, *n. s.* Of Lat. *magister*; **MAG'ISTERIALLY**. cause this procedure made known the principal ingredients. An obsolete term for what is now called the precipitate of certain bodies. See **CHEMISTRY**.

Paracelsus extracteth the *magistry* of wine, exposing it unto the extremity of cold; whereby the aqueous parts will freeze, but the spirit be uncongealed in the centre.

Broune.

The *magistry* of vegetables consists but of the more soluble and coloured parts of the plants that afford it.

Boyle.

Of corals are chiefly prepared the powder ground upon a marble, and the *magisterial* salt, to good purpose in some fevers: the tincture is no more than a solution of the *magisterial* salt.

Græc.

Magistry is a term made use of by chemists to signify sometimes a very fine powder, made by solution and precipitation; as of bismuth, lead, &c., and sometimes resin and resinous substances; as those of jalap, scamony, &c.; but the most genuine acceptation is to express that preparation of any body, wherein the whole, or most part, is, by the addition of somewhat, changed into a body of quite another kind; as when iron or copper is turned into crystals of Mars or Venus.

Quincy.

This precipitate, washed and dried, is what has been called *magistry* of bismuth, or pearl-white.

Parke's Chemical Catechism.

MAGLIABECHI (Anthony), was born at Florence in 1633. His father died when he was only seven years old, and his mother placed him as an apprentice with one of the best goldsmiths in Florence. When about sixteen years of age his passion for learning began to show itself; and becoming acquainted with Michael Ermini, librarian to the cardinal de Medicis, he soon perfected himself, by his assistance, in the Latin tongue, and, in a short time, became master of the Hebrew. His memory was very tenacious. A gentleman lent him a MS. he was going to print, and, some time after it was returned, the gentleman, coming to him with a melancholy countenance, pretended it was lost, and requested Magliabechi to recollect what he could of it; upon which he wrote out the whole without a single omission. He generally shut himself up the whole day, and in the evening received literary men who came to converse with him. Cosmo III., grand duke of Florence, made him his

librarian; but he still continued negligent in his dress, and simple in his manners: an old cloak served him for a morning gown in the day, and for bed-clothes at night. The duke, however, provided for him a commodious apartment in his palace, which he was with difficulty persuaded to take possession of; but which he quitted four months after, and returned to his house. His dinner was commonly three hard boiled eggs, with a draught of water. He spent some hours in each day at the palace library, but is said never in his life to have gone farther from Florence than to Pratz, whither he once accompanied cardinal Norris to see a MS. He had a small window in his door, through which he could see all those who approached him, and if he did not wish for their company he would not admit them. He patronised men of learning; assisted them with his advice and information, and furnished them with books and MSS. Though he lived a most sedentary life, he reached the eighty-first year of his age; enjoying, during the latter part of his life, such affluence as few have ever procured by their learning. He left a very fine library to the public, with a fund for its support.

MAGLOIRE (St.), a native of Wales. He embraced a monastic life, and went into France, where he was made abbot of Dol, and after that a provincial bishop of Brittany. He afterwards founded a monastery in the island of Jersey, where he died October 14th 575, aged eighty. His remains were transported to the suburbs of St. Jaques, and deposited in a monastery of Benedictines, which was ceded to the fathers of the oratory in 1628. This saint cultivated poetry with considerable success: the hymn which is sung at the feast of All Saints was composed by him; *Cœlo quos eadem gloria consecrat*, &c.

MAGNA CHARTA, the great charter of the liberties of England, was first concluded by king John at Runnemede, between Windsor and Staines, June 15th, 1215: and confirmed by Henry III. and Edward I. This charter may be said to derive its origin from king Edward the Confessor, who granted several privileges to the church and state by charter: these liberties and privileges were also granted and confirmed by king Henry I. by a celebrated great charter. By this charter he restored the Saxon laws which were in use under Edward the Confessor, but with such 'emendations as had been made in them by his father, with the advice of his parliament,' at the same time annulling 'all evil customs and illegal exactions, by which the realm had been unjustly oppressed.' Some of these grievances were specified in the charter, and the redress of them expressly enacted. According to one of our greatest antiquaries, Sir Henry Spelman, 'this was the original of king John's Magna Charta, containing most of the articles of it, either particularly expressed, or in general, under the confirmation it gives to the laws of Edward the Confessor.' So mistaken are they, says lord Lytton, who have supposed that all the privileges granted in magna charta were 'innovations' extorted by the arms of rebels from king John! Matthew Paris also tells us, that, in the year 1215, the barons came in arms to king John at London, and demanded of him that certain

liberties and laws of king Edward, with other liberties granted to them, and to the kingdom and church of England, should be confirmed, 'as they were contained and set down in the charter of king Henry I., and in the laws above-mentioned.' And the same historian, where he mentions the 'capitula,' or rough draught of the great charter, delivered to John by the barons, says, that the articles thereof 'were partly written before, in the charter of king Henry I. and partly taken out of the ancient laws of king Edward.' These passages, and also what he says before, of the barons having sworn at St Edmund's Bury, to make war on the king, till he should confirm to them, by a charter under his seal, the laws and liberties granted in the charter of Henry I., sufficiently show, that they understood and intended this charter to be the original and foundation of that which they demanded and obtained from John. Besides, the first charter of Stephen 'confirms the liberties and good laws, which his uncle king Henry gave and granted, and all good laws and good customs, which the nation had enjoyed in the time of Edward the Confessor,' words which evidently refer to the charter. It was also confirmed more expressly by king Henry II. Henry III., after having caused twelve men to make enquiry into the liberties of England in the reign of Henry I., granted a new charter; which was the same as the present magna charta. This he several times confirmed, and as often broke; till, in the thirty-seventh year of his reign, he went to Westminster Hall, and there, in the presence of the nobility and bishops, who held lighted candles in their hands, magna charta was read, the king all the time holding his hand to his breast, and finally swearing solemnly faithfully and inviolably to observe all the things therein contained, &c. Then the bishops extinguishing the candles, and throwing them on the ground, they all cried out, 'Thus let him be extinguished, and stink in hell, who violates this charter.' It is observed that, notwithstanding the solemnity of this confirmation, king Henry, the very next year, again invaded the rights of his people, till the barons entered into a war against him; when, after various success, he confirmed this charter, and the charter of the forest, in the fifty-second year of his reign. This charter confirmed many liberties of the church, and redressed many grievances incident to feudal tenures, of no small moment at the time; though now, unless considered attentively and with this retrospect, they seem but of trifling concern. But, besides these feudal provisions, care was also taken therein to protect the subject against other oppressions, then frequently arising from unreasonable amercements, from illegal distresses or other process for debts or services due to the crown, and from the tyrannical abuse of the prerogative of purveyance and pre-emption. It fixed the forfeiture of lands for felony in the same manner as it still remains prohibited for the future the grants of exclusive fisheries, and the erection of new bridges so as to oppress the neighbourhood. With respect to private rights, it established the testamentary power of the subject over part of his personal estate, the rest being distributed among his wife and children; it laid down the law of dower, as

it has continued ever since; and prohibited the appeals of women, unless after the death of their husbands. In matters of public police, and national concern, it enjoined a uniformity of weights and measures; gave new encouragements to commerce, by the protection of merchant strangers; and forbade the alienation of lands in mortmain. With regard to the administration of justice, besides prohibiting all denials or delays of it, it fixed the court of common pleas at Westminster, that the suitors might no longer be harassed with following the king's person in all his progresses; and at the same time brought the trial of issues home to the very doors of the freeholders, by directing assizes to be taken in the proper counties, and establishing annual circuits; it also corrected some abuses then incident to the trials by wager of law and of battle; directed the regular awarding of inquest for life or member; prohibited the king's inferior ministers from holding pleas of the crown, or trying any criminal charge, whereby many forfeitures might otherwise have unjustly accrued to the exchequer; and regulated the time and place of holding the inferior tribunals of justice, the county court, sheriff's torn, and court-leet. It confirmed and established the liberties of the city of London, and all other cities, boroughs, towns, and ports of the kingdom. And lastly (which alone would have merited the title that it bears of the great charter), it protected every individual of the nation in the free enjoyment of his life, his liberty, and his property, unless declared to be forfeited by the judgment of his peers, or the law of the land. This excellent charter, so equitable and beneficial to the subject, is the most ancient written law in the kingdom. By the 25th Edward I. it is ordained, that it shall be taken as the common law; and by the 43d Edward III. all statutes made against it are declared to be void. A more particular account of the history and contents of all the instruments under the present title may be seen in "An Historical Essay on the Magna Charta of king John, and the other Charters of Liberties and Confirmations." By Richard Thomson. London, 1829, 8vo.

MAGNANIMITY, *n. s.* } Fr. *magnanimité*,
MAGNANIMOUS, *adj.* } Lat. *magnanimus*.

MAGNANIMOUSLY, *adv.* } Greatness or elevation of mind; bravery: the adjective and adverb corresponding.

Confidence in one's self is the chief *nurse* of magnanimity.

Sir P. Sidney.

With deadly hue, an armed corse did dye,

In whose dead face he read great magnanimity.

Spenser.

Let but the acts of the ancient Jews be but indifferently weighed, from whose *magnanimity* in causes of most extreme hazard those strange and unwonted resolutions have grown which, for all circumstances, no people under the roof of heaven did ever hitherto match.

Hooker.

They had enough revenged, having reduced

Their foe to misery beneath their fears;

The rest was magnanimity to remit,

If some convenient ransom was proposed.

Milton.

To give a kingdom hath been thought

Greater and nobler done, and to lay down

Far more magnanimous, than to assure. Id.

In strength

All mortals I excelled, and great in hopes,
With youthful courage, and magnanimous thoughts
Of birth from heaven foretold, and high exploits.

Id.

A complete and generous education fits a man to perform justly, skilfully, and magnanimously, all the offices of peace and war.

Id. on Education.

Magnanimous industry is a resolved assiduity and care, answerable to any weighty work.

Grew's Cosmologia.

Exploding many things under the name of trifles is a very false proof either of wisdom or magnanimity, and a great check to virtuous actions with regard to fame.

Swift.

I have yet found among them, in not a few instances, some of the noblest virtues, magnanimity, generosity, disinterested friendship, and even modesty.

Burns.

MAGNESIA, in chemistry, one of the primitive earths, having a metallic base called magnesium. It has been found native in the state of hydrate. Magnesia may be obtained by pouring into a solution of its sulphate a solution of subcarbonate of soda, washing the precipitate, drying it, and exposing it to a red heat. It is usually procured, in commerce, by acting on magnesian limestone with the impure muriate of magnesia, or bitters of the sea-salt manufactories. The muriatic acid goes to the lime, forming a soluble salt, and leaves behind the magnesia of both the bitters and limestone. Or the bitters is decomposed by a crude subcarbonate of ammonia, obtained from the distillation of bones in iron cylinders. Muriate of ammonia and subcarbonate of magnesia result. The former is evaporated to dryness, mixed with chalk, and sublimed. Subcarbonate of ammonia is thus recovered, with which a new quantity of bitters may be decomposed; and thus, in ceaseless repetition, forming an elegant and economical process. 100 parts of crystallised Epsom salt require, for complete decomposition, fifty-six of subcarbonate of potash, or forty-four dry subcarbonate of soda; and yield sixteen of pure magnesia after calcination.

Magnesia is a white soft powder. Its specific gravity is 2.3 by Kirwan. It renders the syrup of violets, and infusion of red cabbage, green, and reddens turmeric. It is infusible, except by the hydrogen blow-pipe. It has scarcely any taste, and no smell. It is nearly insoluble in water; but it absorbs a quantity of that liquid with the production of heat. And, when it is thrown down from the sulphate by a caustic alkali, it is combined with water, constituting a hydrate, which, however, separates at a red heat. It contains about one-fourth its weight of water.

When magnesia is exposed to the air it very slowly attracts carbonic acid. It combines with sulphur, forming a sulphuret.

The metallic basis, or magnesium, may be obtained in the state of amalgam with mercury, by electrification, as is described under BARIUM; but a much longer time is necessary. Sir H. Davy succeeded also in decomposing magnesia, by passing potassium, in vapor, through it, heated to whiteness in a tube of platinum out of the contact of air. He then introduced a small quantity of mercury, and heated it

gently for some time in the tube. An amalgam was obtained, which by distillation, out of the contact of the atmosphere, afforded a dark-gray metallic film, infusible at the point at which plate-glass softened, and which in the process of the distillation of the mercury rendered the glass black at its point of contact with it. This film burned with a red light when heated strongly, and became converted into a white powder, which had the character of magnesia. When a portion of magnesium was thrown into water it sunk to the bottom, and effervesced slowly, becoming covered with a white powder. By adding a little muriatic acid to the water the effervescence was violent. The metal rapidly disappeared, and the solution was found to contain magnesia.

When magnesia is strongly heated, in contact with two volumes of chlorine, this gas is absorbed, and one volume of oxygen is disengaged. Hence it is evident that there exists a combination of magnesium and chlorine, or a true chloride. The salt called muriate of magnesia is a compound of the chloride and water. When it is acted on by a strong heat, by far the greatest part of the chlorine unites to the hydrogen of the water, and rises in the form of muriatic acid gas; while the oxygen of the decomposed water combines with the magnesium to form magnesia.

Magnesia is often associated with lime in minerals, and their perfect separation becomes an interesting problem in analysis. Mr. Longchamp has published a valuable paper on the subject, in the twelfth volume of the *Ann. de Chim. et de Phys.*

Magnesia is chiefly used as an antacid, purgative, and lithontriptic, in medicine. When incautiously used for a long time it may produce very serious evils, of which a remarkable case is narrated by Mr. Brande, in the first volume of his *Journal*. A lady was recommended to take magnesia, in consequence of some very severe nephritic attacks, accompanied with the passage of gravel. She was desired to take a tea-spoonful every night; and Henry's calcined magnesia was preferred, as that always operated upon the bowels, and 'carried itself off,' which other magnesia did not, but on the contrary felt heavy and uneasy on the stomach. The dose was gradually increased to two tea-spoonfuls, in order to produce effect upon the bowels, which this quantity never failed to do. The symptoms for which it was ordered were soon removed, but the plan was persevered in for two years and a half, with little intermission; so that the average weight of a tea-spoonful is at least forty grains, and the average dose was a tea-spoonful and a half, it may be presumed that she took, during the above period, between nine and ten pounds troy. 'In the course of the last autumn she became sensible of a tenderness in the left side, just above the groin, connected with a deeply seated tumor, obscurely to be felt upon pressure, and subject to attacks of constipation, with painful spasmodic action of the bowels, tenesmus, and a highly irritable state of stomach. These attacks recurred every two or three weeks, varying in violence, but requiring the use of active remedies. Several irregular lumps, of a soft light-brown substance, were voided, having the

appearance of a large mass broken down, and when dry extremely friable. A part of each was subjected to analysis, and found to consist entirely of subcarbonate of magnesia, concreted by the mucus of the bowels, in the proportion of about forty per cent. She was cured by the use of other purgatives.' Another case is mentioned, in which not only large quantities of a concretion of a similar description were voided, but upon examination after death, which took place perhaps six months after any magnesia had been taken, a collection, supposed to be from four to six pounds, was found imbedded in the head of the colon, which was of course much distended. See *MEDICINE*.

MAGNESIA, HYDRATE OF, in mineralogy. This mineral was discovered by Dr. Bruce of New York, in small veins in serpentine at Hoboken, in New Jersey. Color white. Massive. Lustre pearly. Fracture foliated or radiated. Semitransparent in the mass; transparent in single folia. Soft, and somewhat elastic. Adheres slightly to the tongue: Specific gravity 2.13. Soluble in acids. Its constituents are magnesia 70, water 30, which approaches to one prime equivalent of each.—*Jameson*

MAGNESIA, in ancient geography, a maritime district of Thessaly, lying between the south part of the Sinus Thermaicus and the Pegasus on the south, and to the east of the Pelasgiotis. It is called by Horace *Magnesium*.

MAGNESIA, a town of Asia Minor, on the Mæander, about fifteen miles from Ephesus. Themistocles died there: it was one of the three towns given him by Artaxerxes, 'to furnish his table with bread.' It is also celebrated for a battle fought there, 190 years before the Christian era, between the Romans and Antiochus king of Syria. The forces of Antiochus amounted to 70,000 men according to Appian, or 70,000 foot and 12,000 horse according to Livy, which has been exaggerated by Florus to 300,000 men; the Roman army consisted of about 28,000 or 30,000 men, 2000 of whom were employed in guarding the camp. The Syrians lost 50,000 foot and 4000 horse; and the Romans only 300 killed, with twenty-five horse. It was founded by a colony from Magnesia in Thessaly.

MAGNESIA AD SIPPYLUM, a town of Tantalus, the residence of Tantalus, and capital of Mæonia, where now stands the lake Sale; seated at the foot of mount Sipylus, east of the Hermus. It was adjudged free under the Romans, but was destroyed by an earthquake in the reign of Tiberius.

MAGNESITE. Color yellowish-gray, or yellowish-white, and marked with spots. It occurs massive, tuberoso, reniform, and vesicular. Surface rough. Dull. Fracture conchoidal. Fragments rather sharp-edged. Opaque. Scratched by fluor spar, but it scratches calcareous spar. It adheres pretty strongly to the tongue. It feels rather meagre. Streak dull. Rather easily frangible. Specific gravity 2.881. Infusible; but before the blow-pipe it becomes so hard as to scratch glass. Its constituents are, 46 magnesia, 51 carbonic acid, 1 alumina, 0.25 ferruginous manganese, 0.16 lime, 1 water.—*Bucholz*. It is found at Hrubshitz in Moravia, in serpentine rocks.

MAGNETISM.

MAG'NET, *n. s.* } *Lat. magnes; Gr. μαγ-*
MAGNETIC, *adj.* } *νηρα. Μαγνησια*, the
MAGNETICAL, *n. s.* } country where magnets
MAGNETISM, *n. s.* } were first, as it is said,
 discovered. The loadstone; the stone that attracts iron; any ore or metal thus attractive: magnetic and magnetical, having the power of a magnet; attraction in any way: magnetism, the power of the loadstone; attraction generally; the science that teaches the nature of magnetic powers or operations.

The moon is *magnetical* of heat, as the sun is of cold and moisture. *Bacon's Natural History.*

She should all parts to reunion bow;

She that had all *magnetic* force alone;

To draw and fasten hundred parts in one.

Donne.

They, as they move towards his all-cheering lamp,
 Turn swift their various motions, or are turned

By his *magnetick* beam. *Milton's Paradise Lost.*

Draw out with credulous desire, and lead

At will the manliest resolutelest breast,

As the *magnetick* hardest iron draws. *Milton.*

Many other *magnetisms*, and the like attractions
 through all the creatures of nature. *Browne.*

Two *magnets*, heaven and earth, allure to bliss.

The larger loadstone that, the nearer this. *Dryden.*

It may be reasonable to ask, Whether obeying the
magnet be essential to iron? *Locke.*

The *magnet* acts upon iron through all dense
 bodies not *magnetick*, nor red hot, without any diminution of its virtue; as through gold, silver, lead, glass, water. *Newton's Opticks.*

Review this whole *magnetick* scheme.

Blackmore.

By the *magnetisms* of interest our affections are
 irresistibly attracted. *Glanville's Scepis.*

Magnetism coincides with electricity in so many
 important points, that the existence of two *magnetic*
ethers, as well as of two electric ones, becomes highly
 probable. *Darwin.*

MAGNETISM. This science may justly be considered as yet but in its infancy, although the facts elicited since the commencement of the nineteenth century, by Barlow, Morichini, and Davy, bid fair to throw considerable light on some of its more recondite principles.

The theory of magnetism bears a very strong resemblance to that of electricity, and this analogy has been pretty fully examined under the article devoted expressly to **ELECTRO-MAGNETISM**. We have seen the electric fluid not only exerting attractions and repulsions, and causing a peculiar distribution of neighbouring portions of a fluid similar to itself, but also excited in one body, and transferred to another, in such a manner as to be perceptible to the senses, or at least to cause sensible effects, in its passage. The attraction and repulsion, and the peculiar distribution of the neighbouring fluid, are found in the phenomena of magnetism; but we do not perceive any actual excitation, or perceptible transfer of the magnetic fluid from one body to another; and it has also this striking peculiarity, that metallic iron is very nearly the only substance capable of exhibiting any strong indications of its presence.

A magnet, whether natural or artificial, is always possessed of the following characteristic properties, which are inseparable from its nature; so that a body cannot be called a magnet, unless it be possessed of all those properties at the same time. 1. It attracts iron and other ferruginous bodies. 2. When a magnet is placed so as to be at liberty to move itself with sufficient freedom, it turns one, and constantly the same, part of its surface towards the north pole of the earth, or towards a point not much distant from it; and, of course, it turns the opposite part of its surface towards the south pole of the earth, or towards a point not much distant from it. Those parts on the surface of the magnet are therefore called its poles; the former being denominated its north pole, and the latter its south pole. This property itself is called the 'magnet's directive power,' or the 'magnetic polarity;' and when a magnetic body places itself in that direction, it is said to traverse. A plain perpendicular to the horizon, and passing through the poles of a magnet when standing in their natural direction, is called the magnetic meridian; and the angle which the magnetic meridian makes with the meridian of the place where the magnet stands, is called the declination of the magnet, or more commonly of the magnetic needle, at that place; because the artificial magnets, mostly used for observing this property, are generally made of a slender shape, and sometimes real sewing-needles, rendered magnetic, are used for this purpose. 3. When two magnets are placed so that the north pole of one of them is opposite to the south pole of the other, then they attract each other; but if the south pole of one magnet be placed opposite to the south pole of the other, or if the north pole of the one be brought near to the north pole of the other; in either case, a repulsion takes place. In short, magnetic poles of the same name repel each other; but those of different names attract each other. 4. When a magnet is situated so as to be at liberty to move itself with sufficient freedom, it generally inclines one of its poles towards the horizon, and of course it elevates the other pole above it. This is called the inclination, or dipping of the magnet, or of the magnetic needle. 5. Any magnet may, by proper methods, be made to impart those properties to iron, or to steel, or, in short, to most ferruginous bodies.

The earliest theories of magnetism partook of the systematic ideas that prevailed among the philosophers of the day. The vortices of Descartes captivated the mind to such a degree, that attempts were made to introduce them every where. They were given to electric bodies, and the magnet must also have its share. Afterwards the idea suggested itself of simple effluvia of magnetic matter, the molecules of which advanced towards each other, or took a retrograde motion, according to the manner in which the respective effluvia of two magnets met. There were supposed to be in the iron a kind of small hairs that performed the office of valves, to aid

the passage of the fluid in one way, and to oppose its passage when it presented itself in a contrary direction. Such was, among others, the opinion of Dufay; and this philosopher, who had seen so clearly the principle of electric motion, when he came to apply it to magnetism, presented a machine of his own invention, instead of the mechanism of nature.

Æpinus was the first, who, to explain the phenomena of magnetism, made use of simple powers subjected to calculation. The idea which served as the basis of his theory was suggested to him while holding a tourmalin in his hand. He had discovered that the effects of this stone were the result of electricity, and had remarked that it repelled on one side, and attracted on the other, a small electrised body. To these two sides he gave the name of poles, and this appellation, which might have passed for a convenient mode of expression only, became the word really expressive of the thing. He saw in the tourmalin a kind of small electrical magnet, and, comparing the phenomena of real magnet, with those of idio-electric bodies, he found that the action of the two fluids might be reduced to the same laws; and thus added to the merit of having improved the theory of electricity, and created, as it were, the theory of magnetism, that of combining in the same link these two grand portions of the chain of human science.

We may thus more simply illustrate the theory of Æpinus. He imagined that there must exist a fluid capable of producing all the phenomena of attraction and repulsion, and with a subtilty so great, as to penetrate the pores of all bodies; and also of an elastic nature, its particles being repulsive of each other. At the same time he imagined a mutual attraction between the magnetic fluid and iron, or other ferruginous bodies. According to this hypothesis, iron and all ferruginous substances contain a quantity of magnetic fluid, which is equally dispersed through their substance, when those bodies are not magnetic; in which state they show no attraction or repulsion towards each other, because the repulsion between the particles of the magnetic fluid is balanced by the attraction between the matter of those bodies and the same fluid, in which case those bodies are said to be in a natural state; but when, in a ferruginous body, the quantity of magnetic fluid belonging to it is driven to one end, then the body becomes magnetic, one extremity of it being now overcharged with magnetism, and the other extremity undercharged. Bodies thus modified, or rendered magnetic, exert a repulsion between their overcharged extremities, in virtue of the repulsion between the particles of that excess of magnetic fluid which is more than overbalanced by the attraction of their matter. There is an attraction exerted between the overcharged extremity of one magnetic body and the undercharged extremity of the other, on account of the attraction between that fluid and the matter of the body; but, to explain the repulsion which takes place between their undercharged extremities, we must either imagine that the matter of ferruginous bodies, deprived of its magnetic fluid, must be repulsive of its own particles, or that the under-

charged extremities appear to repel each other, only because either of them attracts the opposite overcharged extremities; both which suppositions are embarrassed with difficulties. A ferruginous body, therefore, is rendered magnetic by having the equable diffusion of magnetic fluid throughout its substance disturbed, so as to have an overplus of it in one or more parts, and a deficiency of it in the remainder, and it remains magnetic as long as its impermeability prevents the restoration of the balance between the overcharged and undercharged parts.

Such was the state of our knowledge as to this subject, when on Coulomb the task seems to have devolved of estimating those very small forces discoverable only by the most delicate attention. This philosopher took two magnetic bars which he so disposed on a right line that their opposite poles were about twenty-five millimetres from each other. In the intermediate space he placed, successively, a number of small cylinders made of different materials, and from seven to eight millimetres in length. Each cylinder was suspended freely to a silk thread, such as it comes from the silk-worm. Coulomb observed that this cylinder, of whatever material it was composed, always arranged itself exactly according to the direction of the bars, and, if it were moved out of that direction, it invariably returned to it again after a certain number of oscillations. Gold, silver, copper, lead, glass, chalk, the bones of animals, and different kinds of wood, were tried, and all these bodies felt the action of the magnetic bars.

Two ways suggested themselves of explaining these phenomena: the first, by supposing that all the elements which enter into the composition of our globe were, by their nature, susceptible of the magnetic virtue, but that in most bodies it is so trifling as to be nearly nugatory; and has scarcely been observed except in iron, which possesses it in an eminent degree. The other explanation supposed that the magnetic action exerted by the bars, in the experiments we have cited, was owing to molecular iron, pervading in an imperceptible manner the different natural substances, and eluding the strictest investigation of chemical analysis. Coulomb, who was favorable at first to the former explanation, appears to have wavered since between the two, and has devised a set of experiments, which he has in part executed, the object of which is to measure the action of the bars on the different bodies, and ascertain, relative to the mass of each, what quantity of iron must be disseminated in its interior, to produce the number of oscillations made in a given time.

However that may be, the fact we have stated is the more interesting, as it leads us to consider the terrestrial globe, taken in its whole extent, as an entire magnet, the force of which is the aggregated amount of all those exerted by the molecules that enter into its composition. This fact being once fully established, with regard to all terrestrial bodies, would advantageously compensate for the hypothesis of an individual magnetic nucleus, which has the appearance of having been invented by naturalists, rather to support their own theories, than to give a fair representation of nature.

We shall remark here, that M. Prevost had previously asserted that, to explain natural magnetism, it was not necessary to have recourse to the supposition of a particular nucleus. It is sufficient, according to this naturalist, that the decomposition of the fluid, which is only effected in the interior of the iron, by means in our own power, may have place even out of that metal from natural causes more powerful than the agents of art, and whose permanent influence would keep the two poles of the globe in two states of opposite magnetism.

The magnetising power of the more refrangible rays of light has long been a subject of deep interest to the scientific world, but it has unfortunately been involved in a degree of uncertainty which is seldom attached to a point of experimental enquiry. Dr. Morichini, a respectable physician at Rome, discovered this remarkable property of the violet ray. His experiments were successfully repeated by Dr. Carpi of Rome, and the marquis Cosimo Ridolfi, at Florence; but as M. Dhombre Firmas, who resides at Alais, and professor Configliachi of Pavia, had both failed in obtaining any magnetic effect from violet light; and as M. Berard, a most skilful experimenter, had observed only casual indications of magnetism, the discovery of Morichini was brought into considerable discredit both in France and England.

Fortunately, however, for the reputation of the Italian physician, his experiments were performed both before Sir Humphry Davy, and professor Playfair; before the former in 1814, and the latter in 1817. Sir Humphry Davy stated, that he had paid the most diligent attention to one of Morichini's experiments, and that he saw an unmagnetised needle rendered distinctly magnetic by violet light.

When professor Playfair was at Rome, he saw the experiment performed by Dr. Carpi, in the absence of Morichini, before a party of English and Italian gentlemen. The following account was drawn up by an observer from a conversation which he had with that philosopher:

'The violet light was obtained in the usual manner, by means of a common prism, and was collected into a focus by a lens of a sufficient size. The needle was made of soft wire, and was found, upon trial, to possess neither polarity nor any power of attracting iron filings. It was fixed horizontally upon a support, by means of wax, and in such a direction as to cut the magnetic meridian at right angles. The focus of violet rays was carried slowly along the needle, proceeding from the centre towards one of the extremities, care being taken never to go back in the same direction, and never to touch the other half of the needle. At the end of half an hour after the needle was exposed to the action of the violet rays, it was carefully examined, and it had acquired neither polarity nor any force of attraction; but after continuing the operation twenty-five minutes longer, when it was taken off and placed on its point, it traversed with great alacrity, and settled in the direction of the magnetic meridian, with the end over which the passed turned towards the north. It attracted and suspended a fringe of iron

filings. The extremity of the needle that was exposed to the action of the violet rays repelled the north pole of a compass-needle. This effect was so distinctly marked as to leave no doubt, in the minds of any who were present, that the needle had received its magnetism from the action of the violet rays.'

Such was the state of this subject when Mrs. Somerville directed her attention to it; and it is no slight praise to say, that she has set to rest a question on which the scientific world was divided, and that, by the sagacity and ingenuity with which this lady has conducted her experiments, she has rendered visible, even in the northern climate of Scotland, one of the most delicate of the magnetic influences, which, it was agreed, on all hands, required for its development the serene sky of an Italian climate. The following is a general outline of these interesting experiments:—Having obtained the prismatic spectrum, by means of an equiangular prism of flint-glass placed in a hole in the window-shutter, Mrs. Somerville took a sewing-needle, about an inch long, and entirely devoid of magnetism. This was ascertained by its attracting indifferently either pole of a sewing-needle magnetised in the usual way. This magnetised needle was pushed through a piece of cork, in which was inserted a glass cap, and it was in that state made to revolve freely on the point of another sewing-needle. Conceiving that no polarity would be superinduced if the whole needle was exposed to its action, she covered one half of it with paper, and exposed the other half to the violet rays of the spectrum, cast upon a pannel at the distance of five feet. In about two hours the needle had acquired magnetism, the exposed end exhibiting north polarity. This experiment was often repeated, and always with the same result. By a similar process, Mrs. Somerville ascertained that the indigo rays had nearly as great an effect as the violet, and that the blue and green rays likewise produced the same effect, though in a less degree.

Mrs. Somerville next tried the yellow, orange, and red rays; but neither in them nor the caloric rays was the slightest effect produced, even when the experiments were continued for three successive days. Mrs. S. now applied the same method to pieces of clock and watch springs, about one inch and a half long, and from one-eighth to one-fourth of an inch broad, and they were found to receive a stronger degree of magnetism from the violet rays; an effect which was attributed to their blue color, and their greater extent of surface. Bodkins were not affected. When the violet ray was concentrated by a lens, the magnetic influence was imparted to the needles in a shorter time.

In order to give additional confirmation to these results, Mrs. Somerville exposed magnetised needles, half covered as formerly, to the sun's rays transmitted through glass colored blue by cobalt, and they were distinctly magnetised as before. Needles exposed under green glass received the same property. Mrs. Somerville now enclosed unmagnetised needles in pieces of blue and green riband, one-half of each being covered with paper, and after they had hung a day

in the sun's rays behind a pane of glass, they had acquired magnetic polarity, the exposed ends being north poles, as in the former experiments. When red, orange, or yellow riband was used, no magnetio influence was imparted. In performing these experiments, Mrs. Somerville found that the most favorable time of the day was from ten to one o'clock; and that, as the season advanced, the magnetism acquired was less permanent, as the needle required a longer exposure to acquire the same degree of magnetic virtue.

Mr. Cavallo made several experiments, with a view of ascertaining the magnetism of brass, and investigating the cause of it. The result he gives is as follows:—It appears, he says, '1st. That most brass becomes magnetic by hammering, and loses the magnetism by annealing or softening in the fire, or at least its magnetism is so far weakened by it as afterwards to be only discoverable when set afloat on mercury. 2dly. That the acquired magnetism is not owing to particles of iron or steel imparted to the brass by the tools employed, or naturally mixed with the brass. 3dly. Those pieces of brass which have that property, retain it without any diminution after a great number of repeated trials, viz. after having been repeatedly hardened and softened. But I have not found any means of giving that property to such brass as had it not naturally. 4thly. A large piece of brass has generally a magnetic power somewhat stronger than a small piece; and the flat surface of the piece draws the needle more forcibly than the edge or corner of it. 5thly. If only one end of a large piece of brass be hammered, then that end alone will disturb the magnetic needle, and not the rest. 6thly. The magnetic power which brass acquires by hammering has a certain limit, beyond which it cannot be increased by farther hammering. This limit is various in pieces of brass of different thickness, and likewise of different quality. 7thly. Though there are some pieces of brass which have not the property of being rendered magnetic by hammering, yet all the pieces of magnetic brass that I have tried lose their magnetism so as no longer to affect the needle, by being made red-hot; excepting indeed when some pieces of iron are concealed in them, which sometimes occurs; but, in this case, the piece of brass, after having been made red-hot and cooled, will attract the needle more forcibly with one part of its surface than with the rest of it; and hence, by turning the piece of brass about, and presenting every part of it successively to the suspended magnetic needle, one may easily discover in what part of it the iron is lodged. 8thly. In the course of my experiments on the magnetism of brass, I have twice observed the following remarkable circumstance:—A piece of brass which had the property of becoming magnetic by hammering, and of losing the magnetism by softening, having been left in the fire till it was partially melted, I found, upon trial, that it had lost the property of becoming magnetic by hammering; but, having been afterwards fairly fused in a crucible, it thereby acquired the property it had originally, viz. that of becoming

magnetic by hammering. 9thly. I have likewise often observed, that a long continuance in a fire, so strong as to be little short of melting-hot, generally diminishes, and sometimes quite destroys, the property of becoming magnetic in brass. At the same time the texture of the metal is considerably altered, becoming what some workmen call rotten. From this it appears that the property of becoming magnetic in brass, by hammering, is rather owing to some particular configuration of its parts, than to the admixture of any iron; which is confirmed still farther by observing, that Dutch plate brass, which is made, not by melting the copper, but by keeping it in a strong degree of heat whilst surrounded by lapis calaminaris, also possesses that property; at least all the pieces of it, which I have tried have that property. From these observations it follows, that when brass is to be used for the construction of instruments wherein a magnetic needle is concerned, as dipping needles, variation compasses, &c., the brass should be either left quite soft, or it should be chosen of such a sort as will not be made magnetic by hammering, which sort, however, does not occur very frequently.'

From what we have already stated it will be perfectly evident that magnetic effects are produced by quantities of iron incapable of being detected either by their weight or by any chemical tests. Mr. Cavallo found that a few particles of steel adhering to a hone, on which the point of a needle was slightly rubbed, imparted to it magnetic properties; and Mr. Coulomb has observed that there are scarcely any bodies in nature which do not exhibit some marks of being subjected to the influence of magnetism, although its force is always proportional to the quantity of iron which they contain, as far as that quantity can be ascertained; a single grain being sufficient to make twenty pounds of another metal sensibly magnetic. A combination with a large proportion of oxygen deprives iron of the whole or the greater part of its magnetic properties; finery cinder is still considerably magnetic, but the more perfect oxides and the salts of iron only in a slight degree; it is also said that antimony renders iron incapable of being attracted by the magnet. Nickel, when freed from arsenic and cobalt, is decidedly magnetic, and the more so as it contains less iron. Some of the older chemists supposed nickel to be a compound metal containing iron, and we may still venture to assume this opinion as a magnetical hypothesis. There is, indeed, no way of demonstrating that it is impossible for two substances to be so united as to be incapable of separation by the art of the chemist; had nickel been as dense as platina, or as light as cork, we could not have supposed that it contained any considerable quantity of iron, but in fact the specific gravity of these metals is very nearly the same, and nickel is never found in nature but in the neighbourhood of iron; we may therefore suspect, with some reason, that the hypothesis of the existence of iron in nickel may be even chemically true. The aurora borealis is certainly in some measure a magnetical phenomenon, and, if iron were the only substance capable of ex-

hibiting magnetic effects, it would follow that some ferruginous particles must exist in the upper regions of the atmosphere. The light usually attending this magnetical meteor may possibly be derived from electricity, which may be the immediate cause of a change of the distribution of the magnetic fluid contained in the ferruginous vapors that are imagined to float in the air.

M. Arago's beautiful experiment on the magnetic effects of different metals is now well known; and, as it deserves, attracts attention every where. The following are some results obtained by M. M. Prevost and Colladon, which, as they vary slightly in certain points from those as yet published in this country, will be interesting to such as pursue this branch of science. A disc of glass covered with lead, or a single leaf of tin glued on to wood, sensibly deviated the needle. Wood alone, or sulphur, or a disc of peroxide of iron, had no appreciable effect. A screen of copper, or copper and zinc interposed, diminished the effect without destroying it. The diminution was greater as the screen was thicker, or placed nearer to the needle. A screen of glass had no influence. If the interposed metallic screen was pierced by an aperture equal in diameter to the length of the needle, its effect was very nearly the same. A vertical magnet suspended in the centre of a cylinder of copper remained unmoved, whatever the direction or rapidity of rotation of the ring. When two needles were fixed together in a similar direction, the effect increased; when they were placed with their opposite poles together, it ceased entirely. A needle magnetised, so as to have similar poles at its two extremities, was the apparatus most sensible to the motion of the discs. It was one of this kind which they used in their delicate experiments. The conclusion arrived at by M. M. Prevost and Colladon is, that the effects are due to a transient magnetisation of the discs, which, not being able to modify itself with a rapidity proportional to that by which the different points of the disc are displaced by rotation, are transported to a small angular distance from the needle before they are changed, and draw it after them. This is the same explanation in effect as that of Messrs. Herschel and Babbage. Experiments made with care, to determine the influence of the velocity and the distance of the discs, indicated that the angles of deviation, and not their sines, augmented proportionally with the velocity, at least within certain limits, and that the sines of the angles of deviation increased in an inverse ratio of the power, two and two-tenths of the distance. They were careful to employ, in this determination, discs having diameters very great in comparison to the length of the needle.

There are some important circumstances which require attention, in order to enable us to ascertain the best method of constructing artificial magnets. The nature of the body must be adapted to the power which is to render it magnetic; remembering, that soft ferruginous bodies both acquire and lose magnetism more easily than those which are harder. Several magnets are much preferable to a single one, for the pur-

pose of communicating magnetism; in the application of which it must be remembered that the south pole of the magnet produces a north pole in the part of the ferruginous body to which it is first applied, while the north pole of the magnet produces a south pole.

The late Dr. Gowin Knight practised a method, which he never published, of communicating to iron a very considerable magnetic virtue, and also of increasing that of feeble magnets. From a report, delivered to the Royal Society in 1744, it appears that he had prepared a small eight-coined bar of steel, three inches and almost seven-tenths long, and about half an ounce troy in weight, which lifted by one of its ends about eleven of the same ounces; that another plain bar of steel, and a parallelopiped form, five inches nine-tenths long, four-tenths of an inch broad, and two-tenths of an inch thick, weighing two ounces eight pennyweights and a half, lifted in like manner, by one of its ends, twenty troy ounces; that a steel bar, almost of the same form as the last, but only four inches in length, capped, or armed with iron at each end, cramped with silver, and weighing altogether one ounce fourteen pennyweights, lifted by the feet of the armour full four pounds troy; and that a single block of steel, of a parallelopiped form, almost four inches long, and one inch and two-tenths high, and four-tenths of an inch thick, armed with iron, cramped with brass, and suspended by a ring of the same, and weighing altogether fourteen ounces one pennyweight, lifted by the feet of the armour fourteen pounds two ounces and a half troy weight. He also exhibited a compound artificial magnet, consisting of twelve bars of steel armed, which lifted by the feet of the armour, as the last, twenty-three troy pounds two ounces and a half. At the same time he presented before the society a small armed load-stone, which with its armour weighed seven pennyweights fourteen grains, and which could scarcely lift two ounces; but, improved by his method, it sustained six ounces eighteen pennyweights and three grains.

Mr. Canton's process must now be adverted to. This ingenious philosopher was able, in about half an hour's time, to communicate to six bars of hardened steel, at first entirely destitute of any magnetic virtue, the utmost virtue they were capable of receiving, and that without the mediation or assistance of any natural load-stone, or of any artificial magnet. Mr. Canton has published a description of his process, with such directions, that any person may readily perform the same. For this purpose procure a dozen bars; six of soft steel, each three inches long, one-fourth of an inch broad, and one-twentieth of an inch thick, with two pieces of iron, each half the length of one of the bars, but of the same breadth and thickness: and six of the hard steel, each five inches and a half long, half an inch broad, and three-twentieths of an inch thick, with two pieces of iron of half the length, but the whole breadth and thickness of one of the hard bars; and let all the bars be marked with a line quite round them at one end. Then take an iron poker and tongs, or two bars of iron, plate MAGNETISM, fig. 1, the larger they

are, and the longer they have been used the better; and, fixing the poker upright between the knees, hold it near to the top of one of the soft bars having its marked end downward, by a piece of sewing silk, which must be pulled tight with the left hand, that the bar may not slide; then grasping the tongs with the right hand a little below the middle, and laying them nearly in a vertical position, let the bar be stroked by the lower end, from the bottom to the top, about ten times on each side, which will give it a magnetic power sufficient to lift a small key at the marked end; which end, if the bar was suspended on a point, would turn towards the north, and is, therefore, called the north pole, and the unmarked end is, for the same reason, called the south pole of the bar. Four of the soft bars being impregnated after this manner, lay the other two, fig. 2, parallel to each other, at the distance of about one-fourth of an inch between the two pieces of iron belonging to them, with a north and a south pole against each piece of iron; then take two of the four bars already made magnetical, and place them together so as to make a double bar in thickness, the north pole of one being even with the south pole of the other; and the remaining two being put to these, one on each side, so as to have two north and two south poles together, separate the north from the south poles at one end by a large pin, and place them perpendicularly with that end downward, on the middle of one of the parallel bars, the two north poles towards its south, and the two south poles towards its north end. Slide them backwards and forwards three or four times over the whole length of the bar, and, removing them from the middle of this, place them on the middle of the other bar as before directed, and go over that in the same manner; then turn both the bars with the other side upward, and repeat the former operation: this being done, take the two from between the pieces of iron; and, placing the two outermost of the touching bars in their room, let the other two be the outermost of the four to touch these; and this process being repeated till each pair of bars has been touched three or four times over, which will give them a considerable magnetic power, put the half dozen together after the manner of the four, fig. 3, and touch with them two pairs of the hard bars, placed between the irons, at the distance of about half an inch from each other: then lay the soft bars aside, and with the four hard ones let the other two be impregnated, fig. 4, holding the touching bars apart at the lower end nearly two-tenths of an inch, to which distance let them be separated after they are set on the parallel bar, and brought together again after they are taken off; this being observed, proceed, according to the method already described, till each pair has been touched two or three times over. But, as this vertical way of touching a bar will not give it quite so much of the magnetic virtue as it will receive, let each pair be touched once or twice over, in their parallel position between the irons fig. 5, with two of the bars held horizontally, or nearly so, by drawing at the same time the north of one, from the middle, over the south end of a parallel bar:

then bringing them to the middle again, without touching the parallel bar, give three or four of these horizontal strokes to each side. The horizontal touch, after the vertical, will make the bars as strong as they possibly can be made; as appears by their not receiving any additional strength, when the vertical touch is given by a greater number of bars, and the horizontal by those of a superior magnetic power. This whole process may be gone through in the space of half an hour, and each of the larger bars, if well hardened, may be made to lift twenty-eight troy ounces, and sometimes more. And when these bars are thus impregnated they will give to a hard bar of the same size its full virtue in less than two minutes; and will, therefore, answer all the purposes of magnetism in navigation and experimental philosophy, much better than the load-stone, which is well known not to have sufficient power to impregnate hard bars. The half dozen being put into a case fig. 6, in such a manner as that two poles of the same denomination may not be together, and their irons with them as one bar, they will retain the virtue they have received; but if their power should, by making experiments, be ever so far impaired, it may be restored without any foreign assistance in a few minutes. And if, out of curiosity, a much larger set should be required, these will communicate to them a sufficient power to proceed with, and they may in a short time by the same method be brought to a full strength. Mr. Canton, by the same process, communicated magnetic virtue in two large bars, each half an inch square, ten inches and a half in length, and weighing nearly ten ounces twelve pennyweights, to such a degree, that one of them lifted by one of its ends seventy-nine ounces and nine pennyweights: and a flat semicircular magnet, weighing an ounce and twelve pennyweights, was made to lift, by applying its two ends together to an iron wedge, ninety troy ounces. The same ingenious gentleman could also readily deprive his bars of their virtue; and change the poles of a natural load-stone, by placing it in an inverted direction, between the contrary poles of his larger bars, laid down at some distance from each other, in the same straight line continued at the distance of about a quarter of an inch from either of the poles, without touching the stone with either of the bars.

The method in which the steel he made use of was hardened is as follows:—Having cut a sufficient quantity of the leather of old shoes into very small pieces, an iron pan is provided, which a little exceeds the length of a bar, and is wide enough to admit of two bars side by side without touching each other on the pan, and at least an inch deep. This pan is nearly half filled with the bits of leather, upon which are laid the two bars, having fastened to the end of each a small wire for taking them out: the pan is then quite filled with the leather, and placed on a gentle flat fire, being covered and surrounded with charcoal. The pan, being brought to something more than a red heat, is kept about half an hour; and the bars are suddenly quenched in a large quantity of cold water. Mr. Horne, in his *Essays on Iron and Steel*, p. 147, claims the

merit of directing this process for hardening Mr. Canton's bars.

Captain Scoresby furnishes us with some very valuable information relative to the mode of making artificial magnets. 'Being desirous,' says he, 'of applying my process to the construction of powerful artificial magnets, I prepared (with the assistance of the armourer on board) six bars of steel, and bars properly tempered, suitable for a large compound magnet. The soft steel bars were nearly eight inches long, half an inch broad, and a sixth of an inch thick. The bars for the compound magnet, seven in number, which were of the horse-shoe form, were each two feet long before they were curved, and eleven inches from the crown to the end when finished, one inch broad, and three-eighths thick. These bars were combined by three pins passing through the whole, and screwing into the last; and any number of them could be united into one magnet by means of a spare set of pins screwed throughout their length, and furnished with nuts. In addition to these bars, &c., I provided separate feeders or conductors of soft iron, suitable for connecting the poles of each of the bars of the compound magnet, and also another conductor, fitted to the whole when combined. With this apparatus, I proceeded to give the magnetic virtue as follows:—I took a rod of soft steel, which I considered better than a poker, and hammered it for a minute or two, while held vertically upon a large bar of soft iron in the same position. This gave considerable magnetism to the steel rod. On the top of this, I then hammered each of the six bars of soft steel, until the accession of lifting power ceased. Then fixing two of them on a board, with their different poles opposite and formed, by a feeder at each end, into a parallelogram, I rubbed these after the manner of Canton, by means of the other four bars, and found their magnetism greatly augmented. The other four bars were operated upon in pairs, in a similar way, those already strengthened being used for strengthening the others, and each pair being successively changed until all the bars were found to be magnetised to saturation. A pair of them now possessed a lifting power of two pounds and a half.

'The next step was to touch the bars intended for the compound magnet, by means of these six bars now magnetised. For this purpose, the six bars were combined into two magnets, by tying three of them together, with similar poles in contact: these two were then placed with opposite poles, in connexion, and tied together at one end, but separated about the third of an inch at the other, so as to form one compound magnet, and a conductor was kept constantly applied to the open end of it, when not in use, to preserve the power from being lost. One of the bars of the horse-shoe magnet, with a conductor placed across the poles, was now placed on a board, in a groove cut so as to hold it fast under the operation. The straight bar magnet was then placed erect on the middle of it, with the separated poles downward, and rubbed against the horse-shoe bar, from the middle to one of its poles, until the north pole of the one

was in connexion with the pole intended to become the south of the other; thence it was rubbed back again, with the south pole of the magnet in advance, as far as the other extremity, or that intended for the north pole of the horse-shoe bar. Two or three strokes of this kind being made from end to end of the bar, on each side of the bar, the north and south poles of the magnet being always directed to the north and south poles of the bar respectively, the magnet was slipped sideways off, when at the pole of the bar, and the bar was found to have acquired such a magnetic power as to enable it to sustain a weight of several ounces, hung from the conductor. Each of the bars of the horse-shoe magnet was treated this way in succession, and then the first five bars of the magnet, being combined by the screws, were employed in the same way as the soft steel magnet had been used, for increasing the power of the sixth and seventh bars, by which they were rendered capable of carrying above two pounds weight each. These were then substituted, in the combined magnet, for the fourth and fifth bars, while the latter underwent the touch of the other five in combination; and, in their turn, the second and third, and then the seventh and first, were subjected to a similar treatment. After these operations, which occupied forty-three minutes, the compound magnet, with all the seven bars in connexion, lifted ten pounds.

'After a second series of the same kind of manipulations, five of the bars in combination carried fifteen pounds; and, after a third series, eighteen pounds; but as, on trying a fifth series, little augmentation took place, the process was discontinued. The whole of the operations, from beginning to end, occupied above four hours; but as I generally rubbed each bar with twelve strokes on each side, instead of one or two, which I afterwards found sufficient, and in other parts of the process spent a great deal of time and labor which turned to no account, I doubt not but the whole might have been completed, beginning without the smallest perceptible magnetism, and ending with a lifting power of twenty or thirty pounds, in the space of two hours, or less.'

Mr. Michell's method of making artificial magnets may be thus described:—Prepare a dozen bars of steel, of about one ounce and three-quarters weight each, six inches long, and half an inch broad: let these be hardened by immersion into water at a red heat. The size and shape of the bars may be varied at pleasure, provided that the length be proportioned to the thickness. The best sort of steel is that which has no veins of iron in it, and Mr. Michell found the common blistered steel at least equal to any other. In order to preserve the bars, they must be placed in a box furnished with two pieces of iron, about an inch long each. These pieces of iron may be about a quarter of an inch square, and should be filed perfectly smooth on the sides. Against these are to be placed, with their edges towards them, the twelve magnetical bars, six on one side, with their south or north poles one way, and six on the other side,

with the same poles the contrary way. It is necessary to observe that these bars must neither be taken out, nor put in, all, or too many on a side at once; for if two only be left with their poles of the same denomination the same way, without one or more on the other side to counterbalance their effects, they will injure each other. In order to make the marked ends of these bars south poles, and the other ends north poles, place six of them in a line north and south, bringing the unmarked end of one to touch the marked end of the next throughout; the marked ends lying towards the north, which will be some advantage to them. Then take an armed magnet, and placing it with both poles upon one of the bars, the north pole towards the marked end, which is to be a south pole, and the south pole towards the unmarked end, which is to be a north pole, slide it backwards and forwards from end to end of the whole line of bars three or four times, taking care that they all touch. Then, taking it off, remove the two endmost bars into the middle, and pass over them again three or four times. Having thus touched the bars, it will not be improper to turn them with the other side uppermost, and to magnetise again on that side as before, omitting the endmost bars, till they are removed into the middle, when they must undergo the same process.

Professor Steinhauser has ascertained, that if, by the process of Canton, we unite, in the form of a square, two steel bars, and two contacts of iron, it is better to operate by the double touch in a circle, than by a motion backwards and forwards. Again, when we combine these bars in a square, the force of that which we wish to magnetise ought to increase in proportion as the other magnet has become more energetic. In magnetising horse-shoe magnets, it is much more advantageous to place two of these bent bars, with their friendly poles so situated, as that the magnetic circle shall be completed; and that we should then touch circularly, with the magnet destined to communicate the power. When the two horse-shoe bars are separated, they lose usually a considerable part of their force, if we do not previously decompose the great circuit into two smaller ones, by applying each contact to its curved magnet before the separation. In this way the two separated magnets lose little or nothing of their power; and two may be touched in the same time that one is on the usual plan.

Among artificial magnets, those which are bent into the form of a horse-shoe, and therefore termed horse-shoe magnets, are reckoned the most powerful. To render such a shaped piece magnetic, place a pair of magnetised bars against the ends of the horse-shoe, with the south end of the bar against that of the horse-shoe which is intended to be north, and the north end of the bar to that which is to be the south; the lifter, of soft iron, to be placed at the other end of the bars. Also rub the surfaces of the horse-shoe with the pair of bars, disposed like the legs of compasses when a little open, or with another horse-shoe magnet, turning the poles properly to those of the proposed magnet; and being careful that these bars never touch the ends of the straight bars. To prevent a sudden separation

of the bars from the horse-shoe, which would considerably diminish the force of the latter, slide on the lifter, or support, to the end of the horse-shoe magnet, but in such a manner that it may not touch the bars; they may then be taken away, and the support slid to its place.

AA, fig. 7, plate MAGNETISM, represents this arrangement. AF the armature or pieces of iron, the projections for which are at FF, and to which the central piece of iron D is made to adhere. The dotted line represents a brass box, having a ring O at its upper part, by which the armed magnet may be suspended. Thus the two poles of the magnet, which are at F and F, are made to act on every part alike, and the straight piece of iron D may be conveniently applied for supporting a weight.

The variable power of a magnet may be shown by suspending iron to it, in the following manner:—Suspend a magnet in a place that is not much shaken, and apply to it as much weight of iron as it will just support. Let a hook or a scale, like those used for a balance, be fastened to the iron slide. On the day following the operator may put a little more weight into the scale, which the magnet will support. One or two days after a little more weight may be added, and so on; the power of the magnet increasing daily; and though this increase of power is neither unlimited nor very regular, being affected in some measure by the vicissitudes of heat and cold, yet, upon the whole, the power of a magnet will be considerably increased by this contrivance.

It is very remarkable, that if, in the course of the operation, the iron were to drop from the magnet, on replacing it, you will find that the magnet will no longer support as much weight as it did a moment before; so that now you must diminish the weight, though in the course of the following days you may increase it gradually again; hence, in placing the weights into the scale, or upon the hook, care must be taken not to give it any jerk, so as to cause the iron to fall off, otherwise a great deal of the work will be lost.

The reason of this experiment is, that the iron, being rendered magnetic, tends to strengthen the magnetism of the magnet in the same manner as any other magnet endeavours to render magnetic any ferruginous substance that is placed within its sphere of action. When the iron falls off the magnet loses part of the acquired power, especially if the magnet had acquired more than its point of saturation, there having been removed the cause which kept it up; and, when the iron is replaced, the magnet will not recover the lost power very readily, because there is required a considerable time to communicate a certain degree of magnetic power to a hard ferruginous substance, as the magnet is, especially when that magnetism must be communicated by the action of a proportionably weak magnet, like the iron weight.

According to Epinus's hypothesis of the magnetic fluid, this experiment is thus explained:—The magnetic fluid in a magnet is not equally dispersed through its substance, but one pole or half of it is overcharged, and the other under-

charged. There is a strong attraction between the undercharged part and the superfluous quantity of magnetic fluid in the overcharged part, and the restoration of the balance is in a great measure prevented by the hardness or some other quality of the magnet. Now, when the iron is affixed to the magnet, it becomes magnetic, viz. that part of it which is contiguous to the overcharged pole of the magnet becomes undercharged, and the opposite one becomes overcharged. In this situation the undercharged part of the iron, endeavouring to draw the magnetic fluid of the magnet towards itself, accumulates or draws it still nearer to that overcharged pole of the magnet; and, on the other side, the overcharged part of the iron being contiguous to the undercharged pole of the magnet, tends continually to drive the magnetic fluid away from that undercharged pole of the magnet; but the power of the magnet, according to the hypothesis, depends on the unequal distribution of the magnetic fluid, therefore the action of the iron, by endeavouring continually to increase that unequal distribution, must increase the power of the magnet.

It follows from this experiment, that a magnet is apt to lose much of its power when kept without any iron affixed to it.

As heat is observed to destroy magnetism, so it may also be employed to induce it on substances that are susceptible of magnetism. Dr. Gilbert says, that the ores of iron, which are in that particular metallic state which he considers as most susceptible of magnetism, will acquire it by long continuance in a red heat, if laid in the magnetic direction, and that their polarity is conformable to their position, that end of the mass which is next the north becoming the north pole. He also made many experiments on iron and steel bars exposed to strong heats in the magnetical direction. Such experiments have been made since Gilbert's time in great numbers. Dr. Hooke, in 1684, made experiments on rods of iron and steel, one-fifth of an inch in diameter, and seven inches long. He found them to acquire permanent magnetism by exposure to strong heat in the magnetic direction, and if allowed to cool in that direction. But the magnetism thus acquired by steel rods was much stronger, and more permanent, if they were suddenly quenched with cold water, so as to temper them very hard. He found that the end which was next to the north, or the lower end of a vertical bar, was always its permanent north pole. Even quenching the upper end, while the rest was suffered to cool gradually, rendered it a very sensible south pole. No magnetism was acquired if this operation was performed on a rod lying at right angles to the magnetical direction.

Mr. Scoresby has invented a very useful piece of apparatus called a magnetimeter. This instrument consists of a small table of brass, about four inches square, and three inches high, having a plate of brass attached to it by hinges, and moveable by means of a wheel and pinion, through an arc of 250° of a vertical circle. This plate has a small straight groove running from end to end, for the purpose of receiving bars of metal, the polarity of which is to be determined. These bars are readily fixed to the plate, by being

slipped through a circular aperture in the end of a spring, which, perforating the moveable plate, is marked by a graduated circle, screwed on the side of the table. On the brass table is placed a moveable flat plate of brass, divided into degrees, and furnished with a magnetic needle with aagate cap traversing on a brass or steel point. The needle can be changed according to the nature of the circumstances; a very light and strongly magnetised one being used in delicate experiments. The compass, or plate carrying the needle, being moveable, its distance from the bar resting on the moveable plate, can be varied at pleasure. The centre of the hinge is one-tenth of an inch above the level of the table; and the bars in use, being one-fourth of an inch in diameter, are sunk in the groove of the moveable plate, to such a depth that their axis, or centre, precisely corresponds with the centre of the hinges; hence the middle of the extremity of each bar is at the same elevation, and at the same distance from the needle in every position of the moveable limb. To give firmness to the instrument, in making experiments, the table is fixed by the feet to a mass of lead, of seven or eight pounds weight. By means of this plate of lead, which has a screw at each corner, the whole apparatus is readily put into a horizontal position. With this apparatus, Mr. Scoresby made a series of experiments, which are fully detailed in the Transactions of the Royal Society of Edinburgh, vol. ix., and of which the following are the principal results.

1. Iron bars become magnetical by position, except when placed in the plane of the magnetic equator, the upper end, as regards the position of the magnetic equator, becoming a south pole, and the lower extremity a north pole.

2. No attraction or repulsion appears between a magnetised needle and iron bars; the latter being free from permanent magnetism, whenever the iron is in the plane of the magnetic equator; consequently, by measuring the angle of non-attraction, in a bar placed north and south, we discover the magnetic dip.

3. Before a magnet can attract iron, that is totally free from both permanent magnetism and that of opposition, it infuses into the iron a magnetism of contrary polarity to that of the attracting pole.

4. A bar of soft iron, held in any position, except in the plane of the magnetic equator, may be rendered magnetical by a blow with a hammer or other hard substance; in such cases, the magnetism of position seems to be fixed in it, so as to give it a permanent polarity.

5. An iron bar, with permanent polarity, when placed any where in the plane of the magnetic equator, may be deprived of its magnetism by a blow.

6. Iron is rendered magnetical if scoured or filed, bent or twisted, when in the position of the magnetic axis, or near this position; the upper end becoming a south pole, and the lower end a north pole; but the magnetism is destroyed by the same means, if the bar be held in the plane of the magnetic equator.

7. Iron heated to redness, and quenched in water, in a vertical position, becomes magnetic;

the upper end gaining south polarity, and the lower end north.

8. Hot iron receives more magnetism of position than the same when cold.

9. A bar-magnet, if hammered when in a vertical position, or in the position of the magnetic axis, has its power increased, if the south pole be upward, and loses some of its magnetism if the north end be upward.

10. A bar of soft steel, without magnetic virtue, has its magnetism of position fixed in it, by hammering it when in a vertical position; and loses its magnetism by being struck when in the plane of the magnetic equator.

The application of magnetism to nautical purposes must now be noticed. The history of the compass is involved in much obscurity, as the Chinese appear to have possessed this important instrument long prior to its use in Europe. See COMPASS.

A common sewing-needle, rendered magnetic, and simply laid upon water, or fastened to a cork or straw, &c., and so laid upon water in a glass, or earthen or wooden cup; or else suspended by a very flexible thread, which must be fastened to its middle, forms a simple, but imperfect compass; and such, in all probability, was one of the first modes of constructing the compass, whence the magnetised steel wire, or bar, has ever since been called the magnetic needle. The defects of the last-mentioned construction are too evident to need any particular remarks. The needle laid upon water, is continually running to the sides of the cup, the water is liable to be spilt, or, if a thread be used, the stiffness of it will always influence the action of the needle.

A mariner's compass, or compass generally used on board of ships, is represented in fig. 8. The box, which contains the card or fly with the needle, is made of a circular form, either of wood, brass, or copper. It is suspended within a square wooden box by means of two concentric circles, called gimbals, so fixed by cross axes a, a, a, a , fig. 9, plate II., to the two boxes, that the inner one, or compass-box, shall retain an horizontal position in all motions of the ship, whilst the outer or square box is fixed with respect to the ship. The compass-box is covered with a pane of glass, in order that the motion of the card may not be disturbed by the wind. What is called the card is a circular piece of paper which is fastened upon the needle, and moves with it. Sometimes there is a slender rim of brass which is fastened to the extremities of the needle, and serves to keep the card stretched. The outer edge of this card is divided into 360 equal parts or degrees, and within the circle of these divisions it is again divided into thirty-two equal parts, or arcs, which are called the points of the compass, or rhumbs, each of which is often sub-divided into quarters. The initial letters N., N. E., &c., are annexed to those rhumbs, to denote the north, north-east, &c. The middle part of the card is generally painted with a sort of star, whose rays terminate in the above-mentioned divisions. To avoid confusion, those letters are not drawn in the figure.

The magnetic needles which are commonly used at sea are between four and six inches long;

but those which are used for observing the daily variation, are made a little longer, and their extremities point the variation upon an arch or circle, properly divided or affixed to the box.

The best shape of a magnetic needle is represented in figs. 1 and 2, plate II. **MAGNETISM**; the first shows the upper side, and the second shows a lateral view of the needle, which is of steel, having a hole in the middle, to which a conical piece of agate is adapted by means of a brass piece O, into which the agate cup (as it is called) is fastened. Then the apex of this hollow cap rests upon the point of a pin F, which is fixed in the centre of the box, and upon which the needle, being properly balanced, turns easily. For common purposes, those needles have a conical perforation made in the steel itself, or in a piece of brass which is fastened in the middle of the needle.

It is commonly imagined that the agitation of the compass is communicated by friction at the points or edges of suspension, and the compass-maker has accordingly exerted his ingenuity to diminish this friction, by contrivances similar to that of a conical cap balanced on a point, and itself affording another point to support the needle. But it may be readily proved by experiment, that the greatest disturbance of the needle is produced by the quantity of horizontal progressive motion, and not by the mere inclination or angular motion. A compass-needle, supported on a simple point, will suffer very little agitation from any angular motion, or moderate deviation from perpendicularity in the pin; but it will instantly begin to vibrate if moved horizontally. Thus the common experiment of tilting the compass-box in all positions, while its centre remains immovable, is fallacious.

It appears, therefore, that the steadiness of a needle which vibrates slowly, is the consequence not only of the length of time it allows for alternate actions to operate, and destroy each other; but also of the difficulty with which it yields to such impressions. If the centres of suspension and of gravity in the needle were coincident, no angular motion would be produced by any action of the pin, excepting by the effects of friction; and the angular motion produced in other cases will be less, the shorter the distance between these two centres, or the lever by which it is propagated.

The simple suspension of the needle on a point has been applied to the compass-box, for which it is little suited, not only because of the wear upon so small a surface, but also because it admits the box to traverse horizontally; an effect which is inconvenient, and cannot be remedied by any means not calculated in some respect to increase the effects of agitation. The method most generally employed, and in fact the one best adapted to the purpose, consists in employing gimbals.

This well-known contrivance consists of a hoop supported upon two pins diametrically opposite to each other, and issuing from the external surface of the ring in such a direction that both lie in the same diameter line. When the hoop is suspended on these pins, it is at liberty to turn freely round the diameter of which they

constitute the prolongation. The notches or holes of support are disposed horizontally. The compass-box itself is placed in a similar ring, with two projecting pivots; and these pivots are inserted in holes made in the former ring at an equal distance from each of its pivots. If, therefore, we suppose the hole to be left at liberty, the compass-box may vibrate upon the diametral line of the outer ring, and also upon a line formed by its own pivots, at right angles to that diametral line. The consequence of this arrangement is, that the centre of gravity of the compass-box will dispose itself immediately beneath the intersection of both lines, on which it is at liberty to move:—that is to say, if the weight of the box or its parts be properly disposed, the compass will assume a position in which its upper surface shall be horizontal.

The same principles which were applied to the single centre of the magnetic needle will also apply to the axis of the gimbals. If the centre of gravity of the compass-box be so placed with respect to either axis as that its vibrations shall be quick, every horizontal action will greatly disturb it, and it will not speedily settle. The most favorable position of the pivots or edges of support in the gimbals will be when they all lie in the same plane, and the centre of gravity of the compass-box is very little below that plane. The following valuable results, relative to the best mode of constructing the compass-needle, form part of an admirable paper, by captain Kater, inserted in the Transactions of the Royal Society:—1. That the best material for compass-needles is clock-spring; but care must be taken, in forming the needle, to expose it as seldom as possible to heat, otherwise its capability of receiving magnetism will be much diminished. 2. That the best form for a compass-needle is the pierced rhombus, in the proportion of about five inches in length to two inches in width, this form being susceptible of the greatest directive force. 3. That the best mode of tempering is, first to harden the needle at a red heat, and then to soften it from the middle to about an inch from each extremity, by exposing it to heat sufficient to cause the blue color, which arises, to disappear. 4. That in the same plate of steel, of the size of a few square inches only, portions are found varying considerably in their capability of receiving magnetism, though not apparently differing in any other respect. 5. That polishing the needle has no effect on its magnetism. 6. That the best mode of communicating magnetism to a needle appears to be by placing it in the magnetic meridian, joining the opposite poles of a pair of bar magnets (the magnets being in the same line), and laying the magnets so joined, flat upon the needle, with their poles upon its centre; then having elevated the distant extremities of the magnets, so that they may form an angle of about two or three degrees with the needle, they are to be drawn from the centre of the needle to the extremities, carefully preserving the same inclination; and, having joined the poles of the magnets at a distance from the needle, the operation is to be repeated ten or twelve times on each surface. 7. That in needles

from five to eight inches in length, their weights being equal, the directive forces are nearly as the lengths. 8. That the directive force does not depend upon extent of surface, but, in needles of nearly the same length and form, is as the mass. 9. That the deviation of a compass-needle, occasioned by the attraction of soft iron, depends, as Mr. Barlow has advanced, on extent of surface, and is wholly independent of the mass, except a certain thickness of the iron, amounting to about two-tenths of an inch, which is requisite for the complete development of its attractive energy.

The improved mariner's compass contrived by Mr. Pope, for which he has taken out a patent, is too important to be passed unnoticed. Its great merit consists in suspending the magnetic needle in such a manner as to combine the advantages of the dipping needle with those of the ordinary mariner's compass; the needle, from the peculiar mode in which it is suspended, being perfectly at liberty to dip in all latitudes, from the equator to the poles; while the card retains its horizontal position.

Fig. 3 represents the card, with the needle lying across it, in an orifice cut completely through the card from north to south. The card is perforated with a number of holes, to allow a free circulation of the air.

In fig. 4 the compass is seen in perspective, supported on an agate centre, and the needle dipping, while the card remains horizontal.

The advantages of this admirable invention are at once great and simple: in the first place, this compass increases its power of magnetic force where in others it diminishes, and that in every latitude from the equator to the poles; secondly, it retains its force even situated nearly over the polar point, where all others entirely lose it, and become useless; thirdly, it is more steady on its point, a circumstance of the first importance, when the agitation is increased by the motion of the vessel.

A few remarks by way of elucidation will prove the above; the first property it gains from its peculiar construction, by which the magnet is placed more in harmony with nature; and among many particulars, the principal point consists in the needle falling in a line with the attractive affluvia; this is effected by uniting the nature of a dipping-needle with that of a horizontal steering card; by virtue of which it has power to alter its own elevation, to every degree of latitude it may be placed in, and of course stands nearly in the line of attraction; this it performs without taking the card out of the horizontal position. The second it may be said to retain from the dip of the needle; for at the poles the dipping needle is found to increase its power, when that of the horizontal one is invariably lost. The third property it acquires by the manner of connecting the needle with the card; for when the motion is increased, and the compass exceedingly agitated, this needle quits the card, and attains a perpendicular motion, which serves most effectually to counteract that of the card; so that, between the motion of the card and the needle, the whole is brought to an equipoise; this in connexion with the card of the

compass being perforated, thereby admitting the air that is below the card, to pass freely above, without taking the card with it, renders it much steadier; and, being placed deeply in the box, it is not liable to strike against the glass like the common card.

It scarcely need be remarked, that all compasses hitherto in use diminish their power every degree they are removed from the equinoctial line, which, the inventor of the present patent presumes, is occasioned solely by an erroneous system in the manufacture of the needle, as follows, viz. the mechanic is first careful to make it equally heavy at both ends, so as to swing parallel with the horizon on its point or centre; this done, the needle is further completed by touching it on the magnet for the purpose of gaining the magnetic poles; when it instantly requires a different position, falling from the horizontal to an oblique direction: to prevent this, and bring it parallel again, he is reduced to the alternative of loading the south end, either of the magnet or the card, which effectually performs the intention of the mechanic, but not of nature; for, thus encumbered, the needle is eventually so impeded, that, when it is brought near the poles, its efforts are fruitless, the card falling all around without any direction, from the single circumstance of being lifted beyond its natural inclination: and the magnet also is hereby drawn by main force above the magnetic line, and is obliged in its own defence to hang either on the left or right of it, in order to form a greater angle; for it is the distance from the poles only that enables the horizontal needle to act at all; and hence the variation may apparently be much increased hereby.

It may be suggested against this needle (from the fact that it is capable of being drawn nearly perpendicular when situated over the poles), that it will have no purchase or power over the card, and therefore cannot turn it round to its point: this would be correct but for the consideration of the poise of the needle, which always prevents a steering dipping-needle from falling to its due depression or dip, leaving a sufficient power for the purpose of turning the card; this is also provided for, by hanging the needle below its bearing.

The improvements in the new compass are evident, not only for the high north and south latitudes, but for the East and West India services, as being less subject to get out of repair and lose the power of the attractive force, and also more proof against local attraction, &c. This will appear more certain when it is recollected that all metallic substances (partly the cause of the variation) are contained nearer to the surface than the centre of the earth: they stand in the horizon; therefore, the common mariner's needle being poised horizontally, the metallic lodgments (in the horizon) have power to attract a horizontal needle, whereas this new dipping steering needle points below that line, and forms nearly a true junction with the attractive influence, which is deep in the poles; hence this valuable instrument is not so subject to local attraction. Mr. Ponce has adapted the principle

of the azimuth to the steering compass, which is so constructed as to be capable of steering by, and of taking an azimuth of the sun; thus making use of one compass alone, both to steer by and to take the azimuth.

This compass is furnished with a temporary verge (or glass) to shift on when steering, which leaves the face of the azimuth as clear to see the points and steer by as the common steering compass, and with the same facility performs both operations. He recommends it, therefore, to general use, in preference to his steering compass; but, when the latter is used, one only should be in the binnacle to steer by, instead of two as is customary at present; for there must be local attraction where two compasses are so close together.

In cases where the common compass becomes entirely useless, the able navigator is driven to the alternative of steering by the stars alone, which are not always to be seen, in consequence of thick weather, &c. For this reason, the addition of the dipping-needle to the mariner's compass is a matter of the first consequence to the instrument, and was never effected before the present time. From some experiments made by Mr. Pöpe, he is of opinion that the central part of the earth is one immense spherical magnet, extending from the centre to 40° , the remaining 50° being composed of strata surrounding that nucleus, and arranged from east to west. Now when the mariner's magnetic needle, which is a subject of the principal one (the earth), is brought up to latitudes above 60° , the magnetic north being deep in the earth, the dipping-needle in high latitudes is drawn almost perpendicular; and as it is now harnessed so as to be free of the card, and possesses both the advantages of the dip and of carrying the fly horizontally, its powers remain; whereas the old needle of the compass being riveted to the fly, and the fly being loaded at the south end to make it poise, it is thereby forced against its natural inclination, and brought up to a horizontal position. It then turns its back on its principal, the magnet of the earth; and herein, according to the inventor's opinion, consists the cause of the different effects of the old and new compasses.

Mr. Wales, who accompanied captain Cook in his second voyage, appears to have been the first person who observed the effects of the iron employed in ship building, upon the action of the magnetic needle. This subject was further investigated by captain Flinders, who, in his survey of the coast of New Holland, succeeded in applying a correction for the use of his own vessel. From an account of the survey, published some time after this navigator's return, it appeared that in captain Flinder's vessel, and indeed in every ship, a compass would differ very materially from itself, in being removed from the head to the stern. This was found to arise from the iron which surrounds the compass becoming magnetic, and its entire attractive force is thus concentrated into one powerful focus. Of this, the principal south pole is situated near the middle of the upper deck. This focus of attraction so influences the compass-needle, that it is subject to a considerable varia-

tion from the true meridian, different from what is observed by a compass on shore; the north point of the compass being constantly drawn towards the focus in our hemisphere, and the south point in the opposite hemisphere.

With these facts in view, professor Barlow commenced a series of experiments to remedy the defective apparatus. Having procured a solid iron ball, thirteen inches in diameter, he found, on placing the compass above it, that the north end of the needle was attracted by the upper part of the ball; that, when placed below the ball, the south end was attracted; and that when the needle was raised or depressed, in any vertical around the ball, it always passed through a point in which both attractions became neutralised. The next step in his investigation was to ascertain whether these points of no attraction were all in the same plane; and, if so, to determine correctly its inclination to the horizon,—since it had become obvious, from the care with which the trials had been made, that it was not parallel to it. This question was soon decided: by a series of experiments it was demonstrated that the points were all in the same plane, and that the inclination of the plane itself to the horizon was about 20° , declining directly from the magnetic north point to the south, approaching very nearly to the complement of the dip of the needle. This circle Mr. Barlow now traced on his iron ball, assuming as its principal axis the direction of the dipping needle; and, imagining circles of latitude and longitude to be described around the whole ball, he had thus an ideal magnetic sphere, which would readily indicate the relative position of the iron and the compass in his subsequent experiments. Plate II., fig. 5, will enable the reader to form a correct idea of the nature and properties of this magnetic sphere. O is supposed to represent an iron ball, and $\Delta\Delta\Delta$ a sphere circumscribing it, and within which its influence is active; S, N, being in the magnetic meridian. The line NS, in the plane S, E., N, W, denotes the natural direction of the dipping needle, in those latitudes where its inclination to the horizon is about $70^\circ 30'$. Now, conceiving Q, F, Q', W, to represent a plane, passing through the centre of the ball, and being perpendicular to the axis NS, it will be the plane of no attraction, which has this remarkable property, that if lines be drawn in it (as for example, the lines O C, O, C', O C', &c.) and a compass be placed any where in those lines, or indeed in any point of the plane Q, F, Q', W, it will be uninfluenced by the iron ball, and will preserve its natural magnetic direction.

As soon, however, as the compass is removed out of this plane, the needle is found to deviate from its original bearing,—its south end being attracted towards the ball when the needle is below the plane, and its north end when it is above; and in every case the deviation follows a determinate law, so that, the amount being given in any one case, it may be ascertained for all others.

Suppose, for example, any two other planes, passing through the centre of the ball, each being perpendicular to Q, F, Q', W, of which let M,

O, S, L, represent quadrants; then supposing a compass placed in each of these planes, at equal distances from the centre, at L, we shall have ML, for the latitude, and E M, E M', for the longitude of position of those points; then will the following proportion express the law in question:—The tangent of the deviation of the compass at L is, to the tangent of the deviation of the compass at L', as the rectangle of the sine of $2LM + \cosine EM$ to the rectangle of the sine of $2L'M' + \cosine E M'$, E, being the east point of the horizon.

Pursuing this enquiry, Mr. Barlow next ascertained, by a series of experiments, the law of attraction at different distances of the compass from the iron ball; and which he thus states:—That, while the position as to latitude and longitude is the same, the tangents of the angles of deviation are reciprocally proportional to the cubes of the distances.

Still, however, there remained an important question to be solved, viz. when the position and distance are the same, what is the law of deviation as it respects the mass of the attracting body? And here a most unexpected result was obtained. From the first experiments, which were made with a solid iron ball of ten inches in diameter, it appeared, as Mr. Barlow seems to have anticipated, that the tangents of the deviations are proportioned to the cubes of the diameters, all other things being the same; but happening at this time to make trial of an iron wheel of the same diameter as the ball, but only three-fourths of its weight, he was not a little surprised to find the results in both cases the same. 'In fact,' he remarks, 'it appeared that the power of attraction resided on the surface, and was independent of the mass.'

Before it was discovered that the power of an attracting body resides in its surface, Mr. Barlow had anticipated a great impediment in the way of final success, arising from the mass of iron which he considered as necessary to produce the desired effect. It now, however, readily occurred to him, that, as surface is the principal thing to be attended to, a light, globular shell of iron, or a simple circular plate of the same metal, would be amply sufficient for the purpose. A plate of this description was accordingly tried; it was fifteen inches in diameter, and weighed only 4lbs. 13oz. With this plate Mr. Barlow repeated the series of experiments that had been made with the ball, and had the satisfaction of finding that its power was far greater than would be requisite for doubling the effect of the guns of any vessel in the navy, although applied to the exterior of the binnacle, and fifteen inches distant from the pivot of the needle. The precise situation for this correcting plate is, of course, a matter of essential importance, and cannot be fixed on until the local attraction of the vessel has been ascertained. This is effected in the following manner:—The ship being so moored as to admit of her head being directed to each point of the compass successively, and there steadied whilst the bearing of as remote an object as can be found is taken, it will then be found that the bearings thus taken vary from each other, according to the attractive power of

the vessel, sometimes as much as 28° , which difference is caused by the iron of the ship drawing the needle from its proper direction to the eastward with the ship's head east, and to the westward with the head to the west. It will also be found that two of the bearings, taken at opposite points of the compass, nearly agree with each other, and the mean of these is to be taken as the true magnetic bearing of the object. By these points, also, will be indicated the line of no attraction in the vessel, which in general is found to be nearly fore and aft, and in this line the plate is ultimately to be placed. This being accomplished, a pedestal or compass-stand is then taken ashore, and by trying different situations for it, and turning it about till the same deviations are produced by the plate at each point, as had been observed in the vessel. But this process, which is very troublesome, is now rendered unnecessary, the end being much more readily accomplished by means of a printed table, which is given with the correcting plate; and which comprises a series of attractions obtained by the plate, including all possible limits for every class of vessels. Corresponding to each degree of local attraction are given two numbers, the one indicating the distance of the centre of the plate below the pivot of the needle, and the other its distance from the centre line of the pedestal, and at this depth and distance the plate must be fixed, either fore or aft the compass; if the former, the effect of the vessel will be exactly doubled,—and if the latter it will be neutralised. When the plate is applied in front, which is reckoned preferable in southern voyages, it is not a fixture, but is applied at pleasure; but when placed behind, as recommended in northern voyages, where the disturbance from local attraction is very considerable, it is fixed in its place during the voyage, and the needle is thus left free to obey the influence of the magnetic power of the earth only.

It now remains to give some account of the plate itself. The plate employed by Mr. Barlow in his experiments, as well as those which he sent out by captains Parry and Sabine, consisted of two circular pieces of sheet iron, weighing about 3lbs. per square foot, screwed together in such a manner as to combine any strong irregular power of one plate, with a corresponding weak part on the other, by which means a more uniform attraction is produced; he is, however, of opinion that a single plate of iron, weighing about 6lbs. per square foot, would answer the purpose equally well. In diameter the plate may vary from twelve to sixteen inches, according to the power of the vessel. When the plate is made double, there is a circular board of the same size inserted between the iron discs, for the purpose of increasing the thickness, without adding much to the weight. The two plates thus separated are found to be more powerful than either a single plate, or two plates in immediate contact. The plates are perforated in the centre, and through this opening is passed a brass socket with a broad head, and having an exterior screw and nut, by which the two iron plates, and the interposed plate of wood, are compressed together. Fig. 6 represents the

brass pin, socket, plate, pedestal, and compass, combined, as in action on ship-board.

It appears from a curious paper by Mr. Fisher, on the errors in longitude as determined by chronometers at sea, that a sudden alteration takes place in their rate when taken on ship board, an effect which has been generally ascribed to the motion of the vessel. He ascribes the acceleration which takes place to the 'magnetic action exerted by the iron in the ship, on the inner rim of the balance, which is made of steel;' and in proof of this, he found that analogous effects took place in chronometers when under the influence of magnets placed in different positions with respect to their balances. 'Upon the whole,' says Mr. Fisher, 'it appears that chronometers will be generally accelerated (particularly if their balances have received polarity by the too near approach of any thing magnetic) on ship-board. It appears probable, likewise, that the force of the balance-springs is affected in the same way, since it is well known that chronometers having gold balance-springs, although more difficult to adjust, yet keep better rates at sea than others.'

The use of the chronometrical compass stand, contrived by captain Scoresby, is to preserve the rate of a chronometer, although magnetic properties may have been imparted to it. The instrument represented in fig. 7 consists of a slender cross of brass, supported on a long point of brass, or steel, in a compass-bowl, from which is suspended a rhomboidal compass-needle. On the centre of the brass cross there is a light case of card paper, fitted to the pocket chronometer, to be carried by it. The case for the chronometer slips upon two pins, riveted to a moveable plate upon the cross, which, being made to slide in different directions, may be so placed as to adjust the chronometer fairly over the centre of the needle, and is then fastened by screws. In this state, the magnetic needle below it cause the cross and chronometer to traverse with great celerity. It therefore has the property of keeping the chronometer invariably in the same position, and, being suspended on gimbals, of preserving it from the bad effects of the motion of the ship at sea. The magnetic needle was hung five or six inches below the chronometer, so that its influence on the instrument was not greater than that of the earth; and, being in an opposite direction, has a tendency to neutralise rather than add to this disturbing cause.

The azimuth compass is nothing more than the mariner's compass already examined, to which two sights are adapted, throughout which the sun is to be seen, in order to find its azimuth, and thence to ascertain the declination of the magnetic needle at the place of observation. The particulars in which it differs from the usual compass are, the sights FG fig. 8; in one of which, G, there is an oblong aperture with a perpendicular thread or wire stretched through its middle; and in the other sight, F, there is a narrow perpendicular slit. The thread or wire, HI, is stretched from one edge of the box to the opposite. The ring AB of the gimbals rests with its pivots on the semi-circle CD, the foot, E, of which turns in a socket, so that whilst the box,

KLM, is kept steady, the compass may be turned round, in order to place the sights, F, G, in the direction of the sun.

There are, on the inside of the box, two lines drawn perpendicularly along the sides of the box, just from the points where the thread H I touches the edge of the box. These lines serve to show how many degrees the north or south pole of the needle is distant from the azimuth of the sun; for which purpose the middle of the apertures of the sights F, G, the thread H I, and the said lines, must be exactly in the same vertical plane. The use of the thread H I, which is often omitted in instruments of this sort, is likewise to show the degrees between the magnetic meridian and the azimuth, when the eye of the observer stands perpendicularly over it. On the side of the box of this sort of compasses there is generally a nut or stop, which, when pushed in, bears against the card and stops it, in order that the divisions of the card, which coincide with the lines in the box, may be more commodiously read off.

If the magnetic poles always agreed with the astronomical poles of the globe, the compass-needle must of necessity point due north and south in every part of the earth. This, however, is not the fact, as the needle is found to vary considerably, not only after the lapse of ages, but also at stated periods, within a few hours of its maximum in either direction. In other words, the magnetic meridian, and the real meridian, seldom coincide. The angle which they make is called the angle of declination, and this is said to be east or west, according as the north pole of the needle is eastward or westward of the true meridian of the place. From the minuteness of the daily variation, and the extreme difficulty of measuring it, excepting with the nicest instruments, its laws, and consequently its cause, are still undiscovered.

The following are a series of axioms respecting the variation of the magnetic needle collected by L. Cotte; to which he adds others respecting the northern lights; as being concerned in the movements of the needle.

1. The greatest variation of the needle from the north towards the west takes place about two in the afternoon, and the greatest approximation of it towards the north about eight in the morning; so that, from the last mentioned hour till about two in the afternoon, it endeavours to remove from the north, and, between two in the afternoon and the next morning, to approach it.

2. The annual progress of the magnetic needle is as follows:—between January and March it removes from the north; between March and May it approaches it; in June it is stationary; in July it removes from it; in August, September, and October, it approaches it; its declination in October is the same as in May; in November and December it removes from the north; its greatest western declination is at the vernal equinox, and its greatest approximation to the north at the autumnal equinox.

3. The declination of the magnetic needle is different, according to the latitude: among us it has always increased since 1657; before that period it was easterly.

4. ~~Red~~ The magnetic needle is often subject to very extraordinary movements.

5. The magnetic needle is agitated before and after the appearance of the northern lights: its declination on those occasions is about noon greater than usual.

6. The greater or less appearance of these northern lights is variable; some years this phenomenon is very frequent, in others uncommon.

7. The northern lights are more frequent about the time of the equinoxes than at other periods of the year.

8. This phenomenon is almost constant during the long winter in the polar regions, and is the more uncommon the nearer the equator.

9. Southern lights have been observed also in the regions near the south pole.

10. The northern lights are often accompanied with lightning, and a noise like that of electricity; while the lightning proceeds partly from the middle of the northern lights, and partly from the neighbouring clouds.

It happens that the declination is sometimes subject to interruptions, so that the needle manifestly remains stationary for a while. For example, at Paris the needle experienced no alteration from the year 1720 to 1724, during which it was constantly at 13° from the meridian.

Observation proves, also, that the variations of the declination compared with one another, in different points of the globe, follow different relations. But there is a fact extremely worthy of attention, that has been remarked by the celebrated Halle on the mere inspection of the table of declination published by Van Swinden, whose notice it had escaped. In the table, three places are pointed out where the needle has experienced the greatest declination: and these are, first, in the middle of the Indian Ocean, from 10° to 15° of south latitude, and from 82° 87° of east longitude (reckoning from the island of Ferroe), where the variation, from the year 1700 to that of 1756, was from 11° to $11^\circ 15'$. Secondly, in the Ethiopian Ocean, from 5° of north to 20° or 25° of south latitude, and in the interval of 10° , 15° , and 20° , of east longitude; the variation relative to this space, during the same period of time, was from 10° to $10^\circ 45'$, principally under the line, and to 5° southward. Thirdly, at 50° north latitude, and between 17° of east and 10° of west longitude; where, again, in the same period, there was a variation of from 11° to $11^\circ 45'$.

Looking at Van Swinden's table, Hallé perceived that these three places formed, as it were, three centres, round which the numbers indicating the quantities of variation insensibly decreased in proportion as we departed from each centre; so that we have here a new order of observations, answering to the places where the variation was least in the same course of years.

These places are, first, the whole American Ocean, without including the gulf of Mexico, that is to say, from the eastern point of Africa to the farthest of the Bermudas Islands. And here also we must remark, that, in the ocean between Africa and North America, the variation is much less towards the American than towards the

African coasts. Secondly, the environs of the isle of Madagascar, and part of the coast of Zanguebar. Thirdly, that part of the ocean which is to the south and south-east of the Sunda Islands between those islands and New Holland. And, lastly, in the same sea, about the fourth degree of south latitude, and the ninety-seventh of east longitude, that is, in the middle of the space comprised between the western angle of New Holland and the southern point of Africa. In all these different places the declination of the needle has not varied, during the whole fifty-six years, as much as one degree.

If similar observations had been made in the Pacific Ocean, in the northern and southern oceans, and even the principal divisions of large seas, such as the Baltic, the Mediterranean, the Gulf of Mexico, &c., these places would probably have furnished similar points: and how greatly would the study of natural magnetism be facilitated, by referring to a series of such facts in subordination to a number of centres round which they would range themselves according to the order of their respective relations.

A memoir was presented to the French National Institute, by Humboldt and Biot, 'On the variations of the terrestrial magnetism in different latitudes.' These philosophers, having first determined the position of the magnetic equator by direct observations, proved that the magnetic force must increase in proceeding from that equator to the poles; and the same distinguished foreigners have given a mathematical hypothesis, which, when reduced to a formula, accords with all the inclinations of the needle hitherto observed.

— As to the position of the magnetic equator, supposing it to be a great circle of the terrestrial sphere, an hypothesis which is conformable to observations: the inclination of this plane to the astronomical equator is equal to $12^{\circ}25'$ of the decimal division ($10^{\circ}58'56''$ of the common division), and its occidental node on that equator is at $133^{\circ}37'19''$ ($120^{\circ}2'5''$) longitude west from Paris, that is, a little beyond the continent of America, near the Gallipagos, in the South Sea; the other node is at $66^{\circ}62'81''$ ($59^{\circ}57'55''$) eastward of Paris, that is to say, in the Indian Seas. The points where the axis of the magnetic equator pierces the earth's surface, are, the northern point at $87^{\circ}7'55''$ ($79^{\circ}1'4''$) of north latitude, and at $33^{\circ}37'19''$ ($30^{\circ}2'5''$) of longitude west from Paris; the southern point is situated in the same latitude south, and $166^{\circ}62'81''$ ($149^{\circ}67'55''$) of longitude east from Paris. It is remarkable that this determination of the magnetic equator agrees almost perfectly with that given half a century back, by Wilke and Lemonnier.

With respect to the intensity of the magnetic force, in different parts of the earth, these philosophers have ascertained that it varies in different latitudes; its increase proceeding from the equator towards the poles. The needles of Humboldt's compass, which, at his departure, gave at Paris 245 oscillations in ten minutes, gave no more in Peru than 211, and it constantly varied in the same direction; that is to say, the number of the oscillations always decreased by approach-

ing the magnetic equator, and always increased by advancing towards the north. The differences can neither be ascribed to a diminution of magnetic force in the compass, nor to the effects of heat or of time; for, after three years' residence in the warmest countries of the earth, the same compass gave again in Mexico oscillations as rapid as at Paris.

There are some anomalies, however, occasioned by local causes. Thus Biot, having in the summer of 1804 carried to the Alps the magnetic needle employed in one of his previous aerial excursions, found that its tendency to return to the magnetic meridian was constantly stronger in these mountains than it was at Paris before his departure, and than it had been since his return. This needle, which made at Paris 83.9 oscillations in ten minutes of time, gave oscillations as below, at the places mentioned, in the same interval of ten minutes: viz. Paris, before departure, 83.9; Turin 87.2; on Mount Genevre 88.2; Grenoble 87.4; Lyons 87.3; Geneva 86.5; Dijon 84.5; Paris, after his return, 83.9. It appears to result from these observations, that the action of the Alps has a perceptible influence on the intensity of the magnetic force. Humboldt observed analogous effects at the bottom of the Pyrenees, for instance, at Perpignan. It is not improbable that they arose from the mass of these mountains, or the ferruginous matters contained in them; but, whatever may be the cause, it is hence manifest that the general action of terrestrial magnetism is sensibly modified by local circumstances, the differences of which may be perceived in places very little distant from each other.

The important discovery of the inclination or dip of the magnetic needle was made about the year 1576, by Robert Norman, a compass maker, residing in Wapping, who in 1580 published a pamphlet entitled, 'The Newe Attractive, showing the Nature, Propertie, and manifold Vertues of the Loadstone; with the Declination of the Needle, touched therewith, under the Plaine of the Horizon. Found out and discovered by Robert Norman.' The sole credit of the discovery was awarded to him by Dr. Gilbert and Mr. William Burrows, contemporary writers on the subject of magnetism. The *Newe Attractive* was dedicated to Mr. Burrows, and Dr. Gilbert speaks of the author in the following terms: 'This is that Robert Norman, that skilful seaman, and ingenious artificer, who first found out the inclination of the magnetic needle.' Mr. Bond also assures us, about a century after the invention, 'That he himself saw an inclinatory needle of one Dr. Merrets, which was made by this Robert Norman, A.D. 1578, and which he fitted up for the Dr's use.' This curious pamphlet was reprinted in 1720 by Mr. William Whiston, and subjoined to a work of his own on the discovery of the longitude and latitude by the inclinatory or dipping needle.

The attraction or repulsion of two magnets decreases as the distance increases, but not according to any ratio of the distance. On this account a magnetical bar, which is at liberty to assume any horizontal position, as, for example, a needle floated on water by means of cork, or

the needle of a mariner's compass, being brought into the vicinity of another magnet, will assume such a situation as shall conform to the attractive and repulsive powers as much as possible. Thus, if a suspended magnetical needle be brought near another magnet, it will place itself in a position parallel to the axis of the magnet, if the poles of contrary names in each be mutually equi-distant; but, if the north pole of the suspended needle be nearer the south pole of the magnet than the two other poles are to each other, its north end will be most attracted, and consequently must incline, so that the axis of the two magnets will form an angle greater or less, according to circumstances. Suppose now a small magnetical bar, suspended so as to be capable of assuming any position whatever, be placed upon, or near, the surface of a very large globular magnet. It is evident, in this case, that the two ends of the small bar, being respectively attracted by the contrary poles of the globe, will always be found in a plane passing through these poles; or in other words, if circles or meridians be supposed to be described on the globe, intersecting each other in those poles, the magnetical bar must always be in the plane of one of them. But its situation, with regard to the spherical surface, will be governed by the excess of attraction in the nearest pole. If the bar be suspended immediately over the north pole of the magnet it must stand perpendicularly, with its south end downwards; but, if it be gradually removed along the surface towards the south pole, the increasing action of this last pole will cause it gradually to incline that way. At the equator it will rest parallel to the surface; and, in approaching still nearer the last mentioned pole, its north end will incline towards the surface, till at length it will stand perpendicularly over the south pole of the great magnet, with its north end downwards. For the sake of conciseness, the poles of the great magnet are supposed to be equally strong; which, however, is seldom the case.

This reasoning may be exemplified by placing a small piece of a sewing needle on the surface of a spherical magnet or loadstone. Its position is found to vary according to its situation with respect to the poles. For the same reasons, steel filings gently dusted through a rag upon a magnet, adhere to it in a very curious and amusing manner. The filings, acquiring magnetism by the contact, adhere together, and form a number of small magnets, which arrange themselves in conformity to the attractions of the poles of the original magnet.

From observations of this nature, it was very early supposed, that the globe of the earth acts as a large magnet, upon all other magnets: whence they naturally tend to conform to the meridian or line which joins the poles of the earth. And the dipping of the needle is readily shown to arise from the vicinity, and consequent stronger attraction of the pole towards which the inclination is made.

The dipping needle, though of late much improved, is still, however, far from perfect. The general mode of constructing it is to pass an axis quite through the needle, to let the extre-

mities of the axis, like those of the beam of a balance, rest upon its supports, so that the needle may move itself vertically round, and, when situated in the magnetic meridian, may place itself in the magnetic line. When it is used at sea it is suspended by a ring. When it is placed upon a stand a spirit-level is attached to it.

The greatest imperfection in this instrument is in the balancing of the needle, and the difficulty of ascertaining whether the needle retains its equipoise. In observing the dip of the needle, at any particular place, the best method to avoid the error arising from the want of balance is, first to observe the dip of the needle, then to reverse its magnetism, by the magnetic bars, so that the end of the needle which before was elevated above the horizon may now be below it; and, lastly, to observe its dip again; for a mean of the two observations will be pretty near the truth, though the needle may not be perfectly balanced.

From a series of numerous and accurate experiments made by captain Sabine, he obtained the following measures of the dip of the magnetic needle at London:—

By ten experiments with Tobias Mayer's needle	70° 2' 9"
By the times of oscillation in the magnetic meridian, and in the plane perpendicular to it. Mean by three needles	70 40
By the times of vertical and horizontal oscillation	73 2 6
Mean	70 3 2

Hence captain Sabine concludes, that 70° 3' was the mean dip of the needle at London, in August and September 1821, within a few hours of noon.

As the observations of Nairne and Cavendish give 70° 25' for the dip in 1774, we obtain 3' 02" as the mean annual rate of diminution between 1774 and 1821.

Taking Mr. Whiston's determination of the dip in 1720 at 75° 10', which Mr. Cavendish considered as accurate, the annual diminution is 3' 05".

Having thus illustrated the nature of the magnetic dip, it may now be advisable to notice Biot's hypothesis, in which he attempts to determine the law which regulates the inclination of the needle in different parts of the globe. M. Biot supposes two centres of attraction, or northern and southern poles, situated at equal distances from the centre of the earth, and in the axis of the magnetic equator. He then calculated the effects which ought to result from the action of these centres upon any point of the earth's surface, assuming the attractive force in the reciprocal ratio of the squares of the distances; and the result was, that the nearer these assumed poles were brought to each other, the more perfectly did the calculation agree with experiment.

The following table of the magnetic dip in the Pacific Ocean, north of the equator is too important to be passed unnoticed:—

By whom observed in 1776, to 1780.	Lat. N.	Long. E.	Dip. N. end	By whom observed in 1776, to 1780.	Lat. N.	Long. E.	Dip. N. end
Cook, Dec. 23, 1777,	0 44	203 05	8 42	Bayly,	44 51	229 20	68 31
Bayly, Dec. 25,	1 57	203 00	11 29	Cook, March 16,	44 56	234 56	68 19
Cook, Dec. 22,	1 58	203 00	11 54	March 19,	44 57	234 10	67 20
Dec. 24,	2 02	202 56	10 53	Bayly, Oct. 16, 1779,	45 08	154 10	57 28
Jan. 4, 1778,	4 08	203 16	16 16	Cook, Oct. 15,	46 30	156 01	57 10
Bayly,	4 50	202 55	15 40	Bayly, March 24, 1778,	47 44	235 00	70 00
Cook, Jan. 8,	7 45	205 18	23 01	Cook, Oct. 14, 1779,	48 17	156 15	59 20
Jan. 9,	8 12	205 34	23 37	Bayly, March 28, 1778,	49 27	233 50	71 53
Bayly, Jan. 10,	10 31	205 00	26 49	Cook, April 5, 1778,	49 36	233 47	72 35
Cook, Jan. 12,	12 17	204 36	29 54	Bayly, April 20, 1779,	49 47	161 23	60 55
Sept. 17, 1776,	12 40	201 54	37 38	Oct. 12,	50 55	157 42	63 38
Jan. 12, 1779,	18 35	204 51	38 30	April 27,	52 22	159 23	64 57
Bayly, Jan. 15, 1778,	19 00	201 10	39 49	Cook, Sept. 15,	53 00	159 14	63 01
Cook, in Bay of Oeyhea,	19 28	204 00	40 32	June 7,	53 00	159 14	63 08
Feb. 3, 1779,	19 28	204 00	41 14	Bayly, Aug. 17,	53 50	168 41	66 03
March 26,	19 48	183 39	37 00	Oct. 3,	53 54	194 00	69 11
March 25,	19 57	184 42	38 52	Cook, June 30,	53 54	194 00	68 20
Bayly, March 25, 1779,	19 59	104 35	38 47	Oct. 12, 1778,	53 55	196 00	69 23
Cook, March 21,	20 37	192 43	41 25	Bayly, May 1,	54 40	225 00	73 34
Bayly, March 19,	21 12	194 40	42 10	Aug. 12, 1779,	55 24	171 30	67 47
Cook, Jan. 18, 1778,	21 17	201 18	42 10	Cook, June 18, 1778,	55 24	201 20	70 57
Jan. 28,	21 21	200 30	42 23	June 21, 1779,	55 51	164 21	65 31
Bayly, Jan. 18,	21 46	201 00	42 36	Bayly, June 21,	56 02	164 40	66 40
Jan. 31,	21 47	200 25	42 36	July 5, 1778,	56 31	199 30	71 01
Cook, March 6, 1779,	21 56	216 46	43 11	June 10,	57 10	207 57	73 49
April 2,	22 36	177 50	38 00	Cook, July 14, 1780,	58 12	199 15	72 22
Bayly, Feb. 13, 1778,	24 30	199 44	45 43	Bayly, July 13, 1778,	58 12	198 48	73 06
Cook, Feb. 4,	24 31	200 00	45 52	Cook, May 24, 1780,	58 22	221 22	75 26
Nov. 14, 1779,	24 36	142 30	29 31	Bayly, Sept. 27,	58 38	189 08	73 34
April 3,	24 38	175 51	38 52	May 5, 1778,	58 47	221 33	76 26
Bayly, Nov. 14,	24 50	141 20	31 58	Cook, June 25, 1779,	59 07	169 17	68 25
Nov. 13,	25 56	143 46	31 27	Aug. 7,	59 33	183 20	71
April 5,	25 57	174 17	43 10	Bayly, July 19, 1778,	59 37	197 45	73 03
Cook, Feb. 6, 1778,	27 41	201 00	49 42	June 27, 1779,	60 50	213 26	78 32
Bayly, Feb. 5,	27 43	200 30	48 51	Cook, May 17, 1778,	61 21	181 00	71 57
Cook, Feb. 8, 1778,	30 18	201 37	51 25	Bayly,	61 22	189 00	71 57
April 8, 1779,	30 39	167 34	42 55	May 31,	63 36		74 12
Bayly,	30 54	167 02	43 35	Cook, June 30, 1779,	63 42	188 00	74 59
Feb. 9, 1778,	31 16	203 18	53 47	Bayly, July 1,	64 03	189 20	76 07
Feb. 14,	31 34	306 17	53 10	Cook, July 3,	64 20	195 40	76 36
April 9, 1779,	32 16	167 09	43 47	Bayly,	64 21	198 30	76 58
Feb. 14, 1778,	31 35	206 43	52 12	Cook, Aug. 2,	64 23	189 32	76 03
Nov. 17,	32 26	207 30	54 54	Bayly, Sept 7, 1778,	64 33	197 50	76 25
April 10, 1779,	33 30	166 30	45 37	Sept. 13,	64 35	192 54	76 40
Bayly, Nov. 15, 1778,	33 34	107 32	56 03	Cook, Aug. 1, 1779,	65 09	189 57	76 17
Cook, Nov. 7, 1779,	33 52	148 35	42 50	Sept. 13, 1778,	66 30	191 13	77 10
Bayly, Feb. 17, 1778,	35 04	206 30	46 53	Bayly, Aug. 5,	66 30	89 30	77 15
Nov. 1, 1779,	35 09	142 16	46 35	July 31, 1779,	66 32	92 27	77 07
Cook, Oct. 31,	35 30	142 20	45 00	Aug. 11, 1778,	67 08	89 49	78 48
Aug. 30,	36 41	142 26	46 26	Sept. 2,	67 30	89 07	78 15
Feb. 18, 1778,	36 53	206 32	55 19	Cook, Aug. 13,	68 01	88 45	78 30
Cook, Nov. 28, 1779,	38 06	142 30	48 10	July 18, 1779,	69 12	88 35	79 00
Bayly, Feb. 20, 1778,	38 10	208 15	59 32	Bayly, July 27,	69 23	94 30	80 03
Cook, Feb. 21,	39 06	210 15	59 15	Cook, July 10,	69 26	188 48	80 05
Bayly, Oct. 26, 1779,	40 04	142 44	51 34	July 9,	69 36	185 44	79 35
Cook Oct. 22,	40 50	148 47	51 53	Bayly, July 8,	188 45	79 00	
Feb. 22, 1778,	41 00	215 40	62 54	July 13,	182 40	79 04	
Cook, Nov. 9, 1779,	41 40	147 03	40 03	Cook, Aug. 26, 1778,	195 45	79 52	
Bayly, April 15,	41 53	160 10	53 58	July 14,	197 06	79 40	
Cook, April 16,	42 12	160 11	53 34	Bayly, Aug. 26,	196 22	79 58	
April 17,	43 18	158 67	54 15	July 17, 1779,	198 15	81 46	
Bayly, Feb. 26, 1778,	43 20	222 30	65 48	Cook, Aug. 19,			
March 6,	44 30	235 50	68 29	July 18,			
Cook, March 1,	44 49	228 29	67 25	Bayly, Aug. 18,			

MAGNETISM, ANIMAL, a fancied sympathy said by some persons to exist between the magnet and the human body: by means of which the former became capable of curing many diseases in an unaccountable manner. The fanciful system, to call it by no worse name, of animal magnetism, appears to have originated in 1774, from a German philosopher, named Father Hehl, who greatly recommended the use of the magnet in medicine. M. Mesmer, a physician of the same country, by adopting the principles of Hehl, became the direct founder of the system; but afterwards, deviating from the tenets of his instructor, he lost his patronage, as well as that of Dr. Ingenhousz, which he had formerly enjoyed. Mesmer had already distinguished himself by A Dissertation on the Influence of the Stars upon the Human Body, which he publicly defended in a thesis before the university of Vienna; but he was so unable to stand before the opposition of Hehl and Ingenhousz, that his system fell almost instantly into disrepute. Mesmer appealed to the Academy of Sciences at Berlin; but they rejected his principles as destitute of foundation, and unworthy of the smallest attention. He then made a tour through Germany, publishing every where the great cures he performed by means of his animal magnetism, while his opponents every where pursued him with detections of the falsehood of his assertions. Mesmer, still undaunted by so many defeats, returned to Vienna; but meeting there with no better success than before, he retired to Paris in the beginning of 1778. Here he met with a very different reception. He was first patronised by the author of the *Dictionnaire des Merveilles de la Nature*; in which work a great number of his were published, Mesmer himself receiving an ample testimony of his candor and sound reasoning. He soon collected patients, and, in April 1778, retired with them to Cretail, whence he in a short time returned with them perfectly cured. His success was now as great as his disappointment had been before. Patients increased so rapidly, that he was soon obliged to take in pupils to assist him in his operations. These pupils succeeded as well as Mesmer himself; and so well did they take care of their own emolument, that one of them, named M. Deslon, realized upwards of £100,000 sterling. In 1779 Mesmer published a *Memoir on Animal Magnetism*, promising afterwards a complete work upon the subject, which should make as great a revolution in philosophy as it had already done in medicine. The new system now gained ground daily; and soon became so fashionable, that the jealousy of the faculty was thoroughly awakened, and an application concerning it was made to government. In consequence of this, a committee was appointed to enquire into the matter, consisting partly of physicians, and partly of members of the Royal Academy of Sciences, with Dr. Benjamin Franklin at their head. This was a thunderstroke to the supporters of the new doctrine.—Mesmer himself refused to have any communication with the committee; but his most celebrated pupil Deslon was less scrupulous, and explained the principles of his art in the following manner: ‘1. Animal magnetism

is a universal fluid, constituting an absolute plenum in nature, and the medium of all mutual influence between the celestial bodies, and betwixt the earth and animal bodies. 2. It is the most subtile fluid in nature; capable of a flux and reflux, and of receiving, propagating, and continuing all kinds of motion. 3. The animal body is subjected to the influences of this fluid by means of the nerves, which are immediately affected by it. 4. The human body has poles and other properties analogous to the magnet. 5. The action and virtue of animal magnetism may be communicated from one body to another, whether animate or inanimate. 6. It operates at a great distance without the intervention of any body. 7. It is increased and reflected by mirrors; communicated, propagated, and increased by sound; and may be accumulated, concentrated, and transported. 8. Notwithstanding the universality of this fluid, all animal bodies are not equally affected by it; on the other hand, there are some, though but few in number, the presence of which destroys all the effects of animal magnetism. 9. By means of this fluid nervous disorders are cured immediately, and others mediate; and its virtues, in short, extend to the universal cure and preservation of mankind. From this extraordinary theory, Mesmer, or M. Deslon, had fabricated a paper, in which he stated that there was in nature but one disease and one cure, and that this cure was animal magnetism. To ascertain the truth of these assertions, the committee attended M. Deslon, in the room where his patients underwent his magnetical operations. The apparatus consisted of a circular platform made of oak, one foot and a half high; with a number of holes at the top, in which were iron rods with moveable joints, for the purpose of applying them to any part of the body. The patients were placed in a circle around it, each touching one of these rods, and joined to one another by a cord passing round their bodies. Each of them held an iron rod in his hand ten or twelve feet long, to concentrate the magnetism. M. Deslon also called in the aid of music from a piano-forte: on which some airs were played, accompanied with songs; alleging that music is a conductor of animal magnetism, which is transmitted to the patients by the sounds. The internal part of the platform was said to concentrate the magnetism, and was the reservoir whence the virtue was diffused among the patients. The committee satisfied themselves, by means of a needle and electrometer, that neither common magnetism nor electricity was concerned. Deslon also communicated the magnetism by his finger, and a rod which he held in his hand, and which he carried about the face, head, or such parts of the patient as were diseased. His principal application, however, was by pressure of his hands or fingers on the lower regions of the stomach. The effects of these operations upon his patients were very different. Some felt nothing; others spit, coughed, perspired, and felt, or pretended to feel, extraordinary heats in different parts of the body. Many women, but very few men, had convulsions, which Deslon called their crisis, &c. The commissioners at last finding they could come to

no satisfactory conclusion, while they attended in this public way, determined to try the experiments themselves privately. Accordingly, they, 1. Tried the effects of animal magnetism upon themselves, and felt nothing. 2. Seven of Deslon's patients were magnetised at Dr. Franklin's house, of whom four felt nothing; three felt, or affected to feel something. 3. Several persons in a higher sphere of life were magnetised, and felt nothing. 4. The commissioners now determined to discover what share imagination had in this business, blindfolded several of the common people, and made them sometimes think that they were magnetised; at other times they magnetised them without letting them know that they did so; the consequence was, that when they supposed themselves magnetised, they likewise thought they felt something, and vice versa. 5. A magnetised tree was said to produce convulsions; a young man, blindfolded, fell into convulsions, when he imagined himself near the tree, though he was really at a considerable distance from it. Deslon accounted for this on the principle of all trees being magnetic; but in this case, every one, susceptible of magnetism, would be seized with convulsions when he approached a tree. The same influence of imagination was observed in a woman accustomed to have convulsions when magnetised. They came on when nothing was done to her, on being told, when blinded, that she was magnetised. Other instances were given, from which it was evident, either that the patients were impostors, or in such a wretched state of debility, both of mind or body, that the most trifling effects of the former had the most powerful effects on the latter. The commissioners therefore entirely disapproved of the whole. The touch, imitation, and imagination, they concluded, were the great causes of the effects produced by M. Deslon's operations; and by means of these they supposed that convulsions, which in themselves are a very violent disorder, might be spread much farther than could be wished, even through a whole city. It was observed, that the operator sometimes pressed strongly, and for a long time, upon the hypochondria and pit of the stomach; and it is well known, that a strong pressure on these parts will produce disagreeable sensations in those who enjoy perfect health. Mesmer complained of the report of the commissioners, petitioned parliament, and was by them commanded to discover the mysteries of his doctrine; which is now universally exploded. The conclusion of the academicians concerning it was, that it is not entirely useless to philosophy; as it affords one fact more to be added to the history of the errors and illusions of the human mind, and a signal instance of the power of imagination.

MAGNIEZ (Nicholas), a learned and laborious ecclesiastic, who died in 1749 at an advanced age. He compiled an excellent Latin dictionary, entitled *Novitius*, printed at Paris 1721 and 1733; 2 vols. 4to. This dictionary, besides classical words, contains all those which occur in the Bible, the breviary, and ecclesiastical authors, the terms of art, the names of great men, bishops, councils, heresies, &c.; in short, more than 6000 words which are not to be found in the common dictionaries.

MAGNIFY, *v. a.*

MAGNIF'ABLE, *adj.*

MAGNIFICAI,

MAGNIFIC,

MAGNIFICENCE, *n. s.*

MAGNIFICENT, *adj.*

MAGNIFICENTLY, *adv.*

MAGNIFICO, *n. s.*

MAGNIFIER,

MAGNITUDE.

Lat. magnifico, magnificus, magnificentia, magnitudo; Fr. magnifier, magnifice, magnifique; Ital. and Port. magnificenza; Span. magnificencia; Ital. Span. and Port. magnifico. To make great; exalt; elevate;

increase in apparent bulk or size: hence to amplify; exaggerate; praise; extol: magnificent and magnific mean grand; great; illustrious: magnificence, grandeur; splendid appearance: the adjective and adverb, magnificent and magnificently, correspond: magnifico is an Italian title, a grandee of Venice: a magnifier, a medium or instrument of magnifying, as a particular kind of glass; also an encomiast, one who praises or extols: magnitude is greatness; bulk; grandeur.

For thee drawn abroad her falateries and *magnificu* hemmes, and thei loven the firste sittynge placis in soperis.
Wicliff. Matt. xxiii.

The house that is to be builded for the Lord must be exceeding *magnifical*, of fame and glory throughout all countries.
1 Chron. xxii. 5.

If ye will *magnify* yourselves against me, know now that God hath overthrown me.
Job xix. 5.

He shall *magnify* himself in his heart.

Dan. viii. 5.

He shall exalt and *magnify* himself above every god.

Daniel.

Provision is the foundation of hospitality; and thrift the fuel of *magnificence*.
Sir P. Sidney.

The duke himself, and the *magnificoes*

Of greatest port, have all proceeded with him.

Shakspeare.

This tree hath no extraordinary *magnitude*, touching the trunk or stem; it is hard to find any one bigger than the rest.

Raleigh.

The ambassador, making his oration, did so *magnify* the king and queen, as was enough to glut the hearers.

Bacon.

Never repose so much upon any man's single counsel, fidelity, and discretion, in managing affairs of the first *magnitude*, that is, matters of religion and justice, as to create in yourself, or others, a diffidence of your own judgment.

King Charles.

The prodigal man, while he spendeth, is *magnified*; when he is spent, is pited: and that is all his recompence for his lavished patrimony.

Bp. Hall.

They *magnified* their own services; That having found the kingdom groaning under these difficulties, which seemed to be insuperable, they had by the divine providence overcome them all.

Clarendon.

He with plain heroick *magnitude* of mind,

And celestial vigour armed,

Their armories and magazines contemns.
Milton.

When I behold this goodly frame, this world, Of heaven and earth consisting; and compute Their *magnitudes*: this earth, a spot, a grain,

An atom, with the firmament compared.
Id.

Greater now in thy return,

Than from the giant-angels; thee that day

Thy thunders *magnified*; but to create

Is greater than created to destroy.
Id.

Not Babylon,

Nor great Alcairo, such *magnificence*

Equalled in all her glories to inshrine

Belus or Scrapis, their gods; or seat

Their kings, when Egypt with Assyria strove

In wealth and luxury.
Id. Paradise Lost.

Man be made, and for him built
Magnificent this world. *Id.*

Thrones, dominations, principdoms, virtues, powers !
 If these *magnifick* titles yet remain,
 Not merely titular. *Id.*

Can so *magnificent* and so massy a fabric of commendation stand firm upon such foundations as these ?
Barrow.

Number, though wonderful in itself, and sufficiently *magnifiable* from its demonstrable affection, hath yet received adjections from the multiplying conceits of men.
Browne's Vulgar Errors.

The primitive *magnifiers* of this star were the Egyptians, who notwithstanding chiefly regarded it in relation to their river Nilus.
Browne.

If he were *magnificent*, he spent with an aspiring intent : if he spared, he heaped with an aspiring intent.
Sidney.

Convince the world that you're devout and true ;
 Whatever be you're birth, you're sure to be
 A peer of the first *magnitude* to me. *Dryden.*

Immortal glories in my mind revive,
 When Rome's exalted beauties I descry,
Magnificent in piles of ruin lie. *Addison.*

MAGNIFICAT. The words which Mary pronounced when she visited Elizabeth (contained in chap. i. of Luke, 46—55), begin, in the Vulgate, *Magnificat anima mea dominum* (My soul doth magnify the Lord). Hence the whole of her thanksgiving, on this occasion, has been called the *magnificat*. The present usage of the Roman Catholic Church is, to chant or pronounce the *magnificat* every day, at vespers. It has often been set to music, and forms part of the musical cyclus of the Catholic church. The *magnificat* is also often used in Protestant church music, on the European continent.

MAGNIFICENCE (*highness, eminence*) ; a title applied to the rectors and chancellors of the German universities, and to the burgomasters of free cities. A prince who takes the office of a rector is styled *magnificentissimus*.

MAGNISA, anciently Magnesia, a town of Asia Minor, once the capital of the Greek empire, is situated at the foot of a lofty mountain. Its environs were formerly celebrated for the production of loadstone, and so have given it the name of **MAGNET**, which see. It is a large and populous town, chiefly inhabited by Turks. Twenty miles N. N. E. of Smyrna.

MAGNOLIA, the laurel-leaved tulip tree, in botany, a genus of the polygynia order, and polyandria class of plants ; natural order fifty-second, coadnatæ : cal. triphyllous ; petals nine : caps. bivalved and imbricated : seed pendulous, and in the form of a berry. Species thirteen.

1. *M. acuminata*, with oval spear-shaped pointed leaves, is a native of the inland parts of North America. The leaves are near eight inches long, and five broad ; ending in a point. The flowers come out early in spring, and are composed of twelve white petals ; the wood is of a fine grain, and an orange color.

2. *M. glauca*, the small magnolia, is a native of Virginia, Carolina, and other parts of North America. In moist places it rises from seven or eight to fifteen or sixteen feet high, with a slender

stem. The wood is white and spongy ; the bark smooth, and of a greenish-white color ; the branches garnished with thick smooth leaves, of an oval shape, smooth on their edges, and white underneath. The flowers, produced at the extremities of the branches, are white, composed of six concave petals, and have an agreeable scent. The fruit increases in size till it becomes as large as a walnut with its cover ; but of a conical shape, having many cells round the outside, in each of which is a flat seed about the size of a small kidney-bean, and of a brown color. The seeds are discharged from their cells, and hang by a slender thread. This species generally grows in a poor swampy soil, or on wet meadows. The English and Swedes in Pennsylvania and New Jersey call it beaver tree, because the root of it is the food of beavers, which are caught by its means. It drops its leaves early in autumn, though some of the young trees keep them all the winter. It is seldom found north of Pennsylvania, where it begins to flower about the end of May. The scent of its blossoms are exquisite, and may be perceived at the distance of three-quarters of an English mile. They retain their flowers for three weeks, or longer, according to the soil, spreading their odoriferous exhalations. The berries likewise look very handsome, having a rich red color, and hanging in bunches on slender stalks. They are greatly extolled for their salutary effects in consumptions. The bark put into brandy, or boiled in any liquor, is said to give great relief in cases of cold.

3. *M. grandiflora*, the great magnolia, is a native of Florida and South Carolina. It rises to the height of about eighty feet, with a straight trunk above two feet in diameter, and a regular head. The leaves resemble those of the laurel, but are larger, and continue green throughout the year. The flowers are produced at the ends of the branches, and are of a purplish white color.

4. *M. tripetala*, the umbrella tree, is a native of Carolina. It rises with a slender trunk, to sixteen or twenty feet ; the wood is soft and spongy ; the leaves very large, and produced in horizontal circles, somewhat resembling an umbrella ; whence the inhabitants of those countries have given it this name. The flowers are composed of ten or eleven white petals, hanging down without order. The leaves drop off at the beginning of winter. All these species are propagated by seeds, which must be procured from the places where they grow naturally. They should be put up in sand, and sent over as soon as possible ; for they seldom grow if long kept out of the ground.

MAGNUS (Albertus), a Dominican friar, afterwards bishop of Ratiston, was one of the most learned men and most famous doctors of the thirteenth century. He is said to have acted as a man-midwife. A book entitled *De Natura Rerum*, of which he was the reputed author, gave rise to this report. Albertus Magnus was a man of a most inquisitive turn of mind, which gave rise to other accusations ; such as, that he labored to find out the philosopher's stone ; that he was a magician ; and that he made a machine

n the shape of a man, which was an oracle to him, and explained all the difficulties he proposed. He died at Cologne, November 15th, 1280. His works were printed at Lyons, in 1651, in 21 vols. folio.

MAGNUS (John), archbishop of Upsal, was born at Linköping in 1488. Being made apostolical ununcio, he used his utmost endeavours to prevent Gustavus Vasa from becoming king of Sweden, and the consequent introduction of Lutheranism into his dominions. He died at Rome in 1545. He wrote a History of Sweden, and a History of the Archbishops and Bishops of Upsal.

MAGNUS (Olaus), archbishop of Upsal, succeeded his brother in 1544. He appeared at the council of Trent in 1546, and suffered much afterwards for the Catholic religion. He wrote a History of the Manners, Customs, and Wars of the Northern Nations of Europe.

MAGPIE, *n. s.* Lat. *pie*, *pica*, and mag, contracted from Margaret, as phil is used for a sparrow, and poll for a parrot.—Johnson. Mr. Thomson says from *masculus pica*. A bird sometimes taught to talk.

MAGPIE. See CORVUS.

MAHABALEPURAM, a town of the Carnatic, Hindostan, near which are the celebrated ruins of the Seven Pagodas, dedicated to Vishnu. Several of them are cut out of isolated rocks, and covered with images. On an adjoining hill is a gigantic statue of Vishnu, cut out of the solid rock, in a recumbent posture, with a huge snake folded round him. The town is said to have extended many miles to the eastward, into what is now covered by the sea. Long. 78° 18' E., lat. 12° 23' N.

MAHANTANGO, a township and river of the United States, in Northumberland county, Pennsylvania.

MAHE, a neat trading town of Malabar, is situated a short distance from Tellichery, on the south side of a river where it joins the sea, and which is navigable for large boats. Small vessels can cross the bar, and find a secure harbour. This place was taken by the French in 1722, and by the British in 1761. It was restored at the peace of Paris, but again taken by the British in 1793, and retained. It is now the station of the East India Company's commercial agent; the trade is in pepper. Long. 75° 36' E., lat. 11° 42' N.

MAHMOODSHI, an extensive district of Bengal, on the southern bank of the Ganges. It is intersected by innumerable branches of that river, and contains several towns. The mulberry tree is cultivated, and some silk-worms bred here; but its staple commodity is rice.

MAHIE, the name given by the inhabitants of Otaheite, or George's Island, to their bread-fruit when made into a kind of sour paste, which, in consequence of having undergone a fermentation, will keep a considerable time, and supply them with food when no ripe fruit is to be had. When new fruit appears on the trees, they strip off the former crop, of which they make mahie. This succedaneum for ripe bread-fruit is thus made. They gather the fruit before it is perfectly ripe, and laying it in heaps, cover

it closely with leaves. In this state it ferments, and becomes disagreeably sweet; the core is then taken out entire, and the rest of the fruit thrown into a hole in their houses, dug on purpose, and neatly lined in the bottom and sides with grass. The hole is then covered with leaves, and heavy stones are laid upon them. In this state it undergoes a second fermentation, and becomes sour, after which it will suffer no change for many months. It is taken out of this hole, as it is wanted for use; and, being made into balls, it is wrapped up into leaves and baked, and thus dressed it will keep for five or six weeks.

MAHOGANY; the wood of the *swietenia mahogoni*, a lofty and beautiful South American tree, allied to the *pride of India*, which is so commonly introduced into the Southern States, and belonging to the same natural family—*meliceæ*. The leaves are pinnate, composed of four pairs of oval, acuminate, entire leaflets, and destitute of a terminal one. The flowers are small, white, and are disposed in loose panicles. The fruit is a hard, woody, oval capsule, about as large as a turkey's egg. The wood is hard, compact, reddish-brown, and susceptible of a brilliant polish. It is one of the best and most ornamental woods known, forming very elegant articles of furniture. It is brought principally from Honduras and the West Indies, from which places it is exported, in vast quantities, to Great Britain and the continent of Europe. The tree is of rapid growth, and its trunk often has a diameter of four feet. Mahogany-cutting constitutes a principal occupation of the British settlers in Honduras. Gangs of Negroes, consisting of from ten to fifty each, are employed in this work: one of their number is styled the *hunter*, and his duty is to traverse the woods in search of the trees. When these have been discovered, a stage is erected against each, so high that the tree may be cut down at about twelve feet from the ground. After the branches are lopped, the task commences of conveying the logs to the water's side, which is often a work of considerable difficulty. They now float down the current singly, till they are stopped by cables, purposely stretched across the river at some distance below. Here the different gangs select their own logs, and form them into separate rafts, preparatory to their final destination. In some instances, the profits of this business have been very great, and a single tree has sometimes been known to have produced £400. Mahogany now begins to be rare in St. Domingo, Jamaica, and the other West India Islands. It is said to have been introduced into England about the year 1724.

MAHOMET, or MOHAMMED, the celebrated Arabian prophet, and founder of the Mahomedan religion, was born in the reign of Anushirwan the Just, emperor of Persia, A. D. 571. His father Abdallah was a younger son of Abdalmotaleb; and, dying very young, left his widow and infant son in narrow circumstances, his whole property consisting but of five camels and one female slave. Abdalmotaleb was therefore obliged to take care of his grandchild, which he not only did during his life, but at his death en-

joined his eldest son Abu Taleb, brother to Abdallah, to provide for him afterwards. This he very affectionately did, and instructed him in the business of a merchant, for which purpose he took him to Syria when he was only thirteen. He afterwards recommended him to Khadijah, a rich widow, for her factor; in whose service he behaved so well, that she married and raised him to an equality with the richest in Mecca. According to the tradition of his companions, Mahomet was distinguished by the graces of his person and manners, so that before he spoke he engaged in attachment and interest the affections of a public or private audience. His attendants applauded his commanding presence, his majestic aspect, his piercing eye, his gracious smile, his flowing beard, his countenance that painted every sensation of the soul, and each gesture that enforced every expression of his tongue. In the intercourse of private life he blended, with respectful attention to the affluent and powerful, condescension and affability to the poorest citizens of Mecca; the frankness of his manner concealed the artifice of his views; and the habits of courtesy were imputed to personal friendship or personal benevolence. His memory was capacious and retentive; his wit easy and social; his imagination sublime; his judgment clear, rapid, and decisive. He possessed, says one of his biographers, the courage both of thought and action; and, although his designs might probably expand with his success, the first idea which he entertained of his divine mission bears the stamp of an original and superior genius. Educated amidst the noblest race, he acquired a fluency of speech in the purest dialect of Arabia; and he had the art, on proper occasions, of observing a discreet silence. Notwithstanding all these accomplishments, he was an illiterate barbarian; inasmuch that his youth had never been instructed in the arts of reading and writing. After his advantageous match he first conceived the scheme of establishing a new religion, or, as he expressed it, of replanting the only true and ancient one professed by Adam, Noah, Abraham, Moses, Jesus, and all the prophets; by destroying the gross idolatry into which the generality of his countrymen had fallen, and weeding out the corruptions and superstitions which the Jews and Christians had, as he said, introduced into their religion, and reducing it to its original purity, which consisted chiefly in the worship of one God. But, before he made any attempt abroad, he resolved to begin with the conversion of his own household. Having therefore retired with his family, as he had done several times before, to a cave in Mount Hara, he there opened the secret of his mission to his wife; and acquainted her, that the angel Gabriel had appeared to him, and appointed him the apostle of God: he also repeated to her a passage which he pretended had been revealed to him by the angel, with those other circumstances of this first appearance, which are related by the Mahomedan writers. Khadijah received the news with great joy; and immediately communicated what she had heard to her cousin Warakah Ebn Nawfal, who, being a Christian, was tolerably well versed in the scriptures, and soon became a believer, as-

sur-ing her that the same angel who had formerly appeared unto Moses was now sent to Mahomet. The first overture the prophet made was in the month of Ramadan, in the fortieth year of his age, which is therefore usually called the year of his mission. He soon made proselytes of those under his own roof, viz. his servant Zeid Ebn Haretha, to whom he gave his freedom on that occasion; and his cousin and pupil Ali, the son of Abu Taleb, though then very young; who was styled the first of believers. The next person Mahomet applied to was Abdallah Ebn Abi Kohafa, surnamed Abu Becr, a man of great authority among the Koreish, and one whose interest he knew would be of great service, as it soon appeared: for Abu Becr, being converted, prevailed on Othman Ebn Affan, Abdallah Ebn Awf, Saad Ebn Abbi Wakkas, al Zobeir Ebn al Awam, and Telha Ebn Obeidallah, all principal men of Mecca, to follow his example. These men were the six chief companions, who with a few more were converted in three years: at the end of which Mahomet, having as he hoped a sufficient interest to support him, made his mission no longer a secret, but gave out that God had commanded him to admonish his near relations; and, to do it with greater prospect of success, he directed Ali to prepare an entertainment and invite the sons and descendants of Abdalmotaleb, intending then to open his mind to them. This was done, and about forty of them came; when he announced his mission, and offered them happiness both in this life and in that which is to come. 'Who, therefore,' said he, 'among you will be assistant to me herein, and become my brother, and my vicergerent?' All of them hesitating, Ali rose up and declared that he would be his assistant; and vehemently threatened those who should oppose him. Mahomet upon this embraced Ali, and desired all who were present to obey him as his deputy; at which the company broke out into laughter, and told Abu Taleb that he must now pay obedience to his son. This repulse, however, was so far from discouraging Mahomet, that he began to preach in public to the people; who heard him with patience till he began to upbraid them with their idolatry, obstinacy, and perverseness; which highly provoked them. The chief of the Koreish warmly solicited Abu Taleb to desert his nephew, remonstrated against the innovations he was attempting, and threatened him with an open rupture, if he did not prevail on Mahomet to desist. On this Abu Taleb earnestly dissuaded his nephew from pursuing the affair any farther, representing the great danger he and his friends must otherwise run. But Mahomet told his uncle plainly, that if they set the sun against him on his right hand, and the moon on his left, he would not abandon his enterprise: and Abu Taleb, seeing him so firmly resolved to proceed, promised to support him against all opposition. The Koreish then tried what they could do by force, using Mahomet's followers so cruelly, that it was not safe for them to continue at Mecca: whereupon Mahomet gave leave to such of them as had not friends to protect them to seek for refuge elsewhere. And accordingly, in the fifth year of his mission,

twelve men and four women fled into Ethiopia; among whom were Othman Ebn Assan and his wife Rakiah, Mahomet's daughter. This was the first flight; but afterwards they were followed by eighty-three men and eighteen women, besides children. These refugees were kindly received by the Najashi, or king of Ethiopia; who refused to deliver them up to the Koreish, and, as the Arab writers unanimously attest, professed the Mahomedan religion. In the sixth year of his mission, Mahomet had the pleasure of seeing his party strengthened by the conversion of his uncle Hamza, a man of great valor and merit; and of Omar Ebn al Kattab, a person highly esteemed, and once a violent opposer of the prophet. Islamism now made so great a progress among the Arab tribes, that the Koreish to suppress it effectually, in the seventh year of Mahomet's mission, made a solemn league against the Hashemites and the family of Abdalmotaleb, engaging themselves to contract no marriages with any of them, and to have no communication with them; and, to give it the greater sanction, reduced it into writing, and laid it up in the Caaba. Upon this the tribe became divided into two factions: and the family of Hashem all repaired to Abu Taleb as their head: excepting only Abdal Uzza, surnamed Abu Laheb, who, out of hatred to his nephew and his doctrine, went over to the opposite party, whose chief was Abu Sosian Ebn Harb, of the family of Ommeya. The families continued thus at variance for three years: but, in the tenth year of his mission, Mahomet informed Abu Taleb, that God had manifestly showed his disapprobation of the league which the Koreish had made against them, by sending a worm to eat out every word of the instrument except the name of God. Of this accident Mahomet had probably some private notice; for Abu Taleb went immediately to the Koreish and acquainted them with it; offering, if it proved false, to deliver his nephew up to them; but, in case it were true, he insisted that they ought to lay aside their animosity, and annul the league they had made against the Hashemites. To this they acquiesced; and, going to inspect the writing, to their great astonishment found it to be as Abu Taleb had said: and the league was thereupon declared void. In the same year Abu Taleb died, aged above eighty; and many writers say he died an infidel: though others assert, that when he was at the point of death he embraced Mahomedanism; and in proof of this produce some passages out of his poetical compositions. About a month, or as some write, three days after his uncle's death, Mahomet had the additional mortification to lose his wife Khadijah; whence this year is called the year of mourning. The Koreish began now to be more hostile than ever to the prophet, and especially some who had formerly been his intimate friends; insomuch that he found himself obliged to seek for shelter elsewhere, and first pitched upon Tayef, about sixty miles east of Mecca, for the place of his retreat. Thither therefore he went, accompanied by his servant Zied, and applied himself to two of the chief of the tribe of Thakif, who were the inhabitants of that place; but they received him very coldly. He however staid

there a month; but the slaves and inferior people rose against him, and obliged him to return to Mecca, where he put himself under the protection of Al Motaam Ebn Adi. This repulse greatly discouraged his followers. However, Mahomet boldly continued to preach to the public assemblies at the pilgrimage, and gained several proselytes; and among them six of the inhabitants of Yathreb of the Jewish tribe of Khazraj; who, on their return home, failed not to speak much in commendation of their new religion, and exhorted their fellow citizens to embrace it. In the twelfth year of his mission Mahomet gave out that he had made his miraculous night journey from Mecca to Jerusalem, and thence to heaven. Dr. Prideaux thinks he invented it either to answer the expectations of those who demanded some miracle as a proof of his mission; or else, by pretending to have conversed with God, to establish the authority of whatever he should think fit to leave behind by way of oral tradition, and make his sayings to serve the same purpose as the oral law of the Jews. But it does not appear that Mahomet himself ever expected so great a regard should be paid to his sayings as his followers have since done: and, seeing he all along disclaimed any power of performing miracles, it seems rather to have been a stroke of policy to raise his reputation, by pretending to have actually conversed with God in heaven, as Moses had heretofore done in the mount, and to have received several institutions immediately from him, whereas before he contented himself with persuading them that he had all by the ministry of Gabriel. However this story seemed so absurd and incredible, that several of his followers left him upon it; and it might probably have injured rather than benefited his cause, had not Abu Becr vouched for his veracity, and declared, that, if Mahomet affirmed it to be true, he verily believed the whole. This retrieved the prophet's credit, and contributed to raise his reputation to that great height to which it afterwards arrived. In this year, called by the Mahomedans the accepted year, twelve men of Yathreb or Medina, came to Mecca, and took an oath of fidelity to Mahomet at Akaba, a hill on the north of that city. This oath was called the woman's oath; not that any women were present at this time, but because it was the same oath that was afterwards exacted of the women, viz. That they should renounce all idolatry; and they should not steal, nor commit fornication, nor kill their children (as the Pagan Arabs used to do when they apprehended they should not be able to maintain them); nor forge calumnies; and that they should obey the prophet in all things that were reasonable. When they had solemnly engaged to all this, Mahomet sent one of his disciples, named Masab Ebn Omair, home with them, to instruct them more fully in his new religion. Masab being arrived at Medina, by the assistance of those who had been formerly converted, gained several proselytes, so that there was scarcely a house wherein there were not some who had embraced Mahometanism. In the thirteenth year of Mahomet's mission, Masab returned to Mecca, accompanied by seventy-three men and two women of Medina who had

professed Islamism, besides some others who were as yet unbelievers. On their arrival they immediately sent to Mahomet, and offered him their assistance, of which he was now in great need; for his adversaries were by this time grown so powerful in Mecca, that he could not stay there without imminent danger. Wherefore he accepted their proposal, and met them by night at Akaba, attended by his uncle Abbas; wherein he told them, that as Mahomet was obliged to quit his native city, and seek an asylum elsewhere, and they had offered him their protection, they would do well not to deceive him; that, if they were not firmly resolved to defend and not to betray him, they had better let him provide for his safety in some other manner. Upon their protesting their sincerity, Mahomet swore to be faithful to them, on condition that they should protect him against all insults as heartily as they would their own wives and families. They then asked what recompence they were to expect if they should happen to be killed in his quarrel; he answered, Paradise. Whereupon they pledged their faith to him, and so returned home; after Mahomet had chosen twelve of their number, who were to have the same authority among them as the twelve apostles of Christ had among his disciples.

Mahomet having provided for the security of his companions as well as of himself, by the league offensive and defensive which he concluded with those of Medina, directed them to repair thither, which they accordingly did; but he himself with Abu Beer and Ali staid behind. The Koreish, fearing the consequence of this new alliance, began to think it absolutely necessary to prevent Mahomet's escape to Medina; and, having held a council, came to a resolution that he should be killed; and agreed that a man should be chosen out of every tribe for the execution of this design; and that each man should have a blow at him with his sword, that the guilt of his blood might fall equally on all the tribes, to whose united power the Hashemites were much inferior, and therefore durst not attempt to revenge their kinsman's death. This conspiracy was scarcely formed, when the news of it reached Mahomet, who gave out that it was revealed to him by the angel Gabriel, who ordered him to retire to Medina. Whereupon, in order to amuse his enemies, he directed Ali to lie down in his place, and wrap himself up in his green cloak, which he did; and Mahomet escaped to Abu Beer's house, unperceived by the conspirators, who had already assembled at the prophet's door. They, in the mean time, looking through the crevice, and seeing Ali, whom they took to be Mahomet himself, asleep, continued watching till morning, when Ali arose, and they found themselves deceived. From Abu Beer's house Mahomet and he went to a cave in mount Thur, south-east of Mecca. In this cave they lay hid three days to avoid their enemies, whom they very narrowly escaped: for some say that the Koreish were struck with blindness, so that they could not find the cave; others, that after Mahomet and his companions had entered, two pigeons laid their eggs at the entrance, and a spider covered the mouth of the cave with her web, which made them look no farther. 'We are

only two,' said the trembling Abu Beer: 'There is a third,' replied the prophet, 'it is God himself.' Their enemies having retired, they left the cave, and set out for Medina by a by-road; and, having fortunately escaped some who were sent to pursue them, arrived safely at that city, whither Ali followed them in three days. The first thing Mahomet did after his arrival at Medina was to build a temple for worship, and a house for himself, which he did on a parcel of ground which belonged to Sahal and Soheil, the orphan sons of Amru. Mahometan writers say that the young men insisted he would accept the ground as a present; while others affirm that he actually bought it, and that the money was paid by Abu Beer. Mahomet, being thus settled at Medina, began to send out small parties to make reprisals on the Koreish; the first consisting of only nine men, who plundered a caravan belonging to that tribe, and took two prisoners. But what established his reputation, and laid the foundation of his succeeding greatness, was the battle of Bedr, fought in the second year of the Hegira. Some reckon no less than twenty-seven expeditions in which Mahomet was personally present, in nine of which he gave battle, besides several others in which he was not present. His forces he maintained partly by the contributions of his followers, which he called *zacad*, or alms, and the paying of which he made an article of his religion; and partly by ordering one-fifth of the plunder to be brought into the public treasury for that purpose. In a few years, by the success of his arms, he considerably raised his credit and power. In the sixth year of the Hegira he set out with 1400 men to visit the temple of Mecca, not with any intention of committing hostilities, but in a peaceable manner. However, when he came to Hodeibiya, which is partly within and partly without the sacred territory, the Koreish sent to let him know that they would not permit him to enter Mecca; whereupon he resolved to attack the city; but the people of Mecca sending Arwa Ehn Masud, prince of the tribe of Thakif, as their ambassador, to desire peace, a truce was concluded for ten years, by which any person was allowed to enter into league either with Mahomet, or with the Koreish, as he thought fit. The veneration which the Mahometans had by this time for their prophet, appears from the account which the above-mentioned ambassador gave the Koreish of the extraordinary respect which they showed him. In the seventh year of the Hegira, Mahomet began to think of propagating his religion beyond the bounds of Arabia; and sent messengers to the neighbouring princes, with letters inviting them to embrace his doctrine. Nor was this project without some success. Khosru Parviz, then king of Persia, received his letter with great disdain, and tore it in a passion, sending away the messenger very abruptly; which when Mahomet heard, he said, God shall tear his kingdom: and soon after a messenger came to Mahomet from Badhan, king of Yemen, who was a dependent on the Persians, to acquaint him that he had received orders to send him to Khosru. Mahomet put off his answer till the next morning, and then told the messenger it had been revealed to him that night that Khosru was slain by his son Shiruyeh; add-

ing that he was well assured his new religion and empire would rise to as great a height as that of Khosru; and therefore bid him advise his master to embrace Mahometanism. The messenger being returned, Badhan in a few days received a letter from Shiruyeh, informing him of his father's death, and ordering him to give the prophet no further disturbance: on which Badhan and the Persians with him embraced Mahometanism. The emperor Heraclius, as the Arabian historians assure us, received Mahomet's letter with great respect, laying it on his pillow, and dismissed the bearer honorably. Mahomet wrote to the same effect to the king of Ethiopia, though he had been converted before, according to the Arab writers; and to Mokawkas, governor of Egypt, who gave the messenger a very favorable reception, and sent several valuable presents to Mahomet, and among the rest two girls, one of whom, named Mary, became a great favorite with him. He also sent letters of the like purport to several Arab princes, with varied success. The eighth year of the Hegira was a very fortunate year to Mahomet. In the beginning of it Khaled Ebn al Walid and Amru Ebn al As, both excellent soldiers, the first of whom afterwards conquered Syria and other countries, and the latter Egypt, became proselytes to Mahometanism. And soon after the prophet sent 3000 men against the Grecian forces, to revenge the death of one of his ambassadors, who, being sent to the governor of Bosra on the same errand as those who went to the above-mentioned princes, were slain by an Arab of the tribe of Ghassan, at Muta, a town in the territory of Balka in Syria, about three days journey east of Jerusalem, near which town they encountered. The Grecians being greatly superior in number (for, including the auxiliary Arabs, they had an army of 100,000 men), the Mahometans were repulsed in the first attack, and lost successively three of their generals, viz. Zeid Ebn Haretha, Mahomet's freedman; Jaafar, the son of Abu Taleb; and Abdallah Ebn Rawaha; but Khaled Ebn al Walid, succeeding to the command, overthrew the Greeks with great slaughter, and brought away abundance of rich spoil; on occasion of which action Mahomet gave him the title of Seif min soyuf Allah, one of the swords of God. In this year also Mahomet took the city of Mecca, the inhabitants whereof had broken the truce; for the tribe of Beer, who were confederates with the Koreish, attacking those of Khozah, who were allies of Mahomet, killed several of them, being supported in the action by a party of the Koreish themselves. The consequence of this violation was soon apprehended; and Abu Sosian himself made a journey to Medina on purpose to heal the breach and renew the truce; but in vain, for Mahomet refused to see him; whereupon he applied to Abu Beer and Ali; but, they giving him no answer, he was obliged to return to Mecca as he came. Mahomet immediately ordered preparations to be made, that he might surprise the Meccans while they were unprovided to receive him; in a little time he began his march thither, and by the time he came near the city his forces were increased to 10,000 men. Those of Mecca, being unable to

defend themselves against so formidable an army surrendered at discretion; and Abu Sosian saved his life by turning Mahometan. About twenty-eight of the idolaters were killed by a party under the command of Khaled, but contrary to Mahomet's orders, who, when he entered the town, pardoned all the Koreish on their submission, except six men and four women, who had apostatised, and were solemnly proscribed by the prophet himself; but of these only three men and one woman were put to death, the rest being pardoned on their embracing Mahometanism, and one of the women making her escape. The remainder of this year Mahomet employed in destroying the idols in and round Mecca, sending several of his generals on expeditions for that purpose, and to invite the Arabs to Islamism. The next year, being the ninth of the Hegira, the Mahometans call the year of embassies, for the Arabs had been hitherto expecting the issue of the war between Mahomet and the Koreish; but as soon as that tribe, the principal of the nation, and the genuine descendants of Ishmael, whose prerogatives none offered to dispute, had submitted, they were satisfied that it was not in their power to oppose Mahomet; and therefore began to come in to him in great numbers, and to send embassies to make their submission to him, both to Mecca, while he staid there, and also to Medina, whither he returned this year. Among the rest five kings of the tribe of Hamyar professed Mahometanism, and sent ambassadors to notify the same. In the tenth year, Ali was sent into Yemen to propagate the Mahometan faith there; and, as it is said, converted the whole tribe of Hamdad in one day. Their example was quickly followed by all the inhabitants of that province, except only those of Najran, who, being Christians, chose rather to pay tribute. Thus was Mahometanism established, and idolatry rooted out, even in Mahomet's life-time, throughout all Arabia, except only Yamama, where Moseilama, who set up also for a prophet as Mahomet's competitor, had a great party, and was not reduced till the khalifat of Abu Beer; and the Arabs being then united in one faith, and under one prince, found themselves in a condition for making those conquests which extended the Mahometan faith over so great a part of the world.

Till the age of sixty-three, Mahomet retained a vigor of constitution which enabled him to endure the corporal and spiritual fatigues of his mission. The last conspicuous act of his life was his pilgrimage to Mecca. His health had been declining for four years previous to his death; and he ascribed this change to poison administered to him at Chaibar, by a Jewish female, from a motive of revenge, as some have said, or, according to others, from a desire of putting his prophetic character to the test. However this may be, his mortal disease was a fever of fourteen days, which at intervals deprived him of the use of his reason. During the intermissions of his disorder he employed himself in haranguing his disciples from the pulpit, and performing other religious duties of his function, and in giving instructions with regard to the measures that were fit to be pursued after his decease. He be-

held; it is said, with firmness the approach of death, satisfied the demands of his creditors, enfranchised his slaves, directed the order of his funeral; moderated the grief of his weeping friends, on whom he bestowed the benediction of peace, and regularly performed the exercise of public prayer till the third day before his dissolution. The choice of Abubeker to supply his place indicated his respect for this ancient and faithful friend, as he seems to have thought him a fit successor in the sacerdotal and regal office. If any credit may be given to the traditions of his wives and companions, he maintained, to the last moments of his life and in confidential intercourse with his family, the dignity of an apostle and the faith of an enthusiast; describing the visits of Gabriel, and expressing his lively confidence, not only in the mercy, but the favor, of the Supreme Being. In a familiar discourse he had mentioned his special prerogative, That the angel of death was not allowed to take his soul till he had respectfully asked the permission of the prophet. The request being granted, Mahomet fell into the agony of dissolution, and expired in the arms, or on a carpet near the feet of his favorite wife Ayesha, the daughter of Abubeker, in the month of June, A. D. 632, Hegira 11, at the age of sixty-three. Some of his followers would not for a time believe the reality or possibility of his death, till Abubeker calmly reasoned them out of their delusion. He was interred at Medina, in a grave dug beneath the bed on which he expired, over which a magnificent building was erected by one of the caliphs.

MAHOMET II., surnamed the Great, was born at Adrianople, the 24th of March, 1430; and succeeded his father Amurah II. in 1451. He took Constantinople in 1453, and thereby drove many learned Greeks into the West, which was a great cause of the restoration of learning in Europe, as the Greek literature was then introduced here. He conquered two empires, twelve kingdoms, and 200 considerable cities: and he was the first of the Ottoman emperors whom the western nations dignified with the title of grand seignior, which posterity has preserved to his descendants. Italy had suffered greater calamities, but had never felt a terror equal to that which this sultan's victories imprinted. The inhabitants seemed already condemned to wear the turban; and pope Sixtus IV., dreading the fate of Constantinople, thought of escaping into Provence, and transferring the holy see to Avignon. Hence the tidings of Mahomet's death, which happened the 3d of May, 1481, were received at Rome with the greatest demonstrations of joy. Mahomet appears to have been the first sultan who was a lover of arts and sciences, and cultivated polite letters. He studied the history of Augustus and the other Cæsars; and he perused those of Alexander, Constantine, and Theodosius, with more than ordinary pleasure, because they had reigned in the same country with himself. He was much addicted to astrology, and used to encourage his troops by giving out, that the influence of the heavenly bodies promised him the empire of the world. Contrary to the genius of his country, he distinguished himself in foreign languages, that he not

only spoke the Arabian, but also the Persian, Greek, and French. Iandini, a knight of Rhodes, collected several of his letters, written in Syriac, Greek, and Turkish, and translated them into Latin. Where the originals are is unknown, but the translation has been published at Lyons, 1520, in 4to.; at Basil 1554, 12mo.: in a collection by Oporinus, at Marburg, 1604, in 8vo.; and at Leipsic, in 1690, 12mo. Professor Melchior Junius published at Montbeliard, 1595, a collection of letters, in which there are three written by Mahomet II. to Scanderbeg.

MAHOMET IV. was born in 1642, and succeeded in 1649, on the murder of his father Ibrahim I. He was unsuccessful in most of his enterprises. He took Candia from the Venetians in 1669, but lost 100,000 men in the siege. He took several towns in Poland, but was repeatedly defeated by king John Sobieski. In 1683 he besieged Vienna, but was completely routed by the Poles and Austrians. In 1687 he was deposed by the Janizaries, and succeeded by Solyman III. He died in prison in 1693.

MAHOMETANISM, or MAHOMETISM, the system of religion broached by Mahomet, and still adhered to by his followers. See MAHOMET, and ALGORAN. Mahometanism is professed by the Turks, Persians, several nations among the Africans, and many in the East Indies. The Mahometans divide their religion into two general parts, faith and practice; of which the first is divided into six distinct branches: belief in God, in his angels, his scriptures, his prophets, in the resurrection and final judgment, and in God's absolute decrees. The points relating to practice are, prayer with washings, &c., alms, fasting, pilgrimage to Mecca, and circumcision.

1. The Mahometans, at least those who are reckoned orthodox, profess to believe in and worship the true God, the God of the Jews and Christians. 2. The existence and purity of angels are, in the Koran, required to be believed; and he is reckoned an infidel who denies there are such beings, or hates any of them, or asserts any distinction of sexes among them. They believe them to have pure and subtle bodies, created of fire; that they neither eat nor drink, nor propagate their species; that they have various forms and offices, some adoring God in different postures, others singing praises to him, or interceding for mankind. They hold that some of them are employed in writing down the actions of men; others in carrying the throne of God, and other services. The four angels whom they look on as more eminently in God's favor are, Gabriel, to whom they give several titles, particularly those of the holy spirit, and the angel of revelations, supposing him to be honored by God with a greater confidence than any other, and to be employed in writing down the divine decrees; Michael, the friend and protector of the Jews; Azrael, the angel of death, who separates men's souls from their bodies; and Israfil, whose office it will be to sound the trumpet at the resurrection. They also believe that two guardian angels attend on every man, to observe and write down his actions, being changed every day, and therefore called al Moakkibat, or the angels who continually succeed one another.

The devil, whom Mahomet names Eblis, from his despair, was once one of those angels who are nearest to God's presence, called Azazel; and fell, for refusing to pay homage to Adam at the command of God. Besides angels and devils, the Mahometans believe in an intermediate order of creatures, which they call jin or genii, created also of fire, but of a grosser fabric than angels, as they eat and drink, and propagate their species, and are subject to death. Some of these are supposed to be good and others bad, and capable of salvation or damnation as men are; whence Mahomet pretended to be sent for the conversion of genii as well as men. 3. As to the Scriptures, the Koran teaches that God, in divers ages of the world, gave revelations of his will in writing to several prophets, the whole and every one of which it is absolutely necessary for a good Moslem to believe. The number of these sacred books were, according to them, 104; of which ten were given to Adam, fifty to Seth, thirty to Edris or Enoch, ten to Abraham; and the other four, being the Pentateuch, the Psalms, the Gospel, and the Koran, were successively delivered to Moses, David, Jesus, and Mahomet; which last being the seal of the prophets, those revelations are now closed, and no more are to be expected. All these divine books, except the four last, they agree to be now entirely lost, and their contents unknown; though the Sabians have several books which they attribute to the antediluvian prophets. And of these four, the Pentateuch, Psalms, and Gospel, they say, have undergone so many alterations and corruptions, that, though there may possibly be some part of the true word of God therein, yet no credit is to be given to the present copies in the hands of the Jews and Christians. The Mahometans have also a gospel in Arabic, attributed to St. Barnabas. See BARNABAS. Of this gospel the Moriscoes in Africa have a translation in Spanish. It appears to be no original forgery of the Mahometans; though they have no doubt altered it since, e. g. instead of the paraclete, or comforter, they have in this apocryphal gospel inserted the word periclyte, i. e. the famous or illustrious; by which they pretend their prophet was foretold by name, that being the signification of Mahomet in Arabic; and this they say to justify that passage of the Koran where Jesus Christ is formally asserted to have foretold his coming under his other name of Ahmed, which is derived from the same root as Mohammed, and of the same import. From these, or some other forgeries of the same stamp, the Mahometans quote several passages, of which there is not the least vestige in the New Testament. The number of the prophets, from time to time sent by God into the world, amounts to no less than 224,000 according to one Mahometan tradition; or to 124,000 according to another: among whom 313 were apostles, sent with special commissions to reclaim mankind from infidelity and superstition; and six of them brought new laws or dispensations, which successively abrogated the preceding: these were Adam, Noah, Abraham, Moses, Jesus, and Mahomet. All the prophets in general the Mahomedans believe to have been free from great sins, and professors of the

same religion, viz. Islam, notwithstanding the different laws and institutions which they observed. They hold some of them to be more excellent and honorable than others. The first place they give to the revealers of new dispensations, and the next to the apostles. In this great number of prophets, they not only reckon divers patriarchs and persons named in Scripture, but not recorded to have been prophets, as Adam, Seth, Lot, Ishmael, Nun, Joshua, &c., and introduced some of them under different names, as Enoch, Heber, and Jethro, who are called in the Koran, Edris, Hud, and Shoab; but several others whose names do not appear in Scripture, as Saleb, Khedr, Dkulkef, &c. 5. They believe in a general resurrection and a future judgment. When a corpse is laid in the grave, they say he is received by an angel, who gives him notice of the coming of the two examiners, who are two black livid angels, of a terrible appearance, named Monker and Nakir. These order the dead person to sit upright, and examine him concerning his faith, as to the unity of God, and the mission of Mahomet: if he answer rightly, they suffer the body to rest in peace, and it is refreshed by the air of paradise; but if not, they beat him on the temples with iron maces, till he roars out for anguish so loud, that he is heard by all from east to west, except men and genii. They then press the earth on the corpse, which is gnawed and stung till the resurrection by ninety-nine dragons, with seven heads each; or, as others say, their sins become venomous beasts, the grievous ones stinging like dragons, the smaller like scorpions, and the others like serpents; circumstances which some understand in a figurative sense. As to the soul, they hold, that, when it is separated from the body by the angel of death, who performs his office with ease and gentleness towards the good, and with violence towards the wicked, it enters into that which they call al berzakh, or the interval between death and the resurrection. If the departed person was a believer, they say two angels meet it, who convey it to heaven, that its place there may be assigned, according to its merit and degree. For they distinguish the souls of the faithful into three classes; viz. 1. Prophets, whose souls are admitted into Paradise immediately: 2. Martyrs, whose spirits, according to a tradition of Mahomet, rest in the crops of green birds, which eat of the fruits and drink of the rivers of paradise; and 3. Other believers, concerning the state of whose souls before the resurrection there are various opinions. Though some Mahometans have thought that the resurrection will be merely spiritual, and no more than the returning of the soul to the place whence it first came (an opinion defended by Ebn Sina, and called by some the opinion of the philosophers); and others, who allow man to consist of body only, that it will be merely corporeal; the received opinion is, that both body and soul will be raised; and their doctors argue strenuously for the possibility of the resurrection of the body, and dispute with great subtlety concerning the manner of it. But Mahomet has taken care to preserve one part of the body, whatever becomes of the rest, to serve

for a basis of the future edifice, or rather a heaven for the mass which is to be joined to it. For he taught, that a man's body was entirely consumed by the earth, except only the bone called al ajb, which we name the os coccygis, or rump-bone; and that, as it was the first formed in the human body, it will also remain uncorrupted till the last day, as a seed whence the whole is to be renewed: and this, he said, would be effected by a forty years' rain, which God should send, and which would cover the earth to the height of twelve cubits, and cause the bodies to sprout forth like plants. Herein also is Mahomet beholden to the Jews, who say the same things of the bone luz, excepting that what he attributes to a rain will be effected, according to them, by a dew impregnating the dust of the earth. The time of the resurrection the Mahometans allow to be a perfect secret to all but God alone; the angel Gabriel himself acknowledging his ignorance in this point, when Mahomet asked him about it. However, they say, the approach of that day may be known from certain signs which are to precede it. These signs they distinguish into two sorts, the less and the greater. The less signs are, 1. The decay of faith among men. 2. The advancing of the meanest persons to eminent dignity. 3. That a maid-servant shall become the mother of her mistress (or master); by which is meant, either that towards the end of the world men shall be much given to sensuality, or that the Mahometans shall then take many captives. 4. Tumults and seditions. 5. A war with the Turks. 6. Great distress in the world, so that a man, when he passes by another's grave, shall say, would to God I were in his place. 7. That the provinces of Irac and Syria shall refuse to pay their tribute. And 8. That the buildings of Midian shall reach to Ahab, or Yahab. The greater signs are, 1. The sun's rising in the west. 2. The appearance of the beast, which shall rise out of the earth, in the temple of Mecca, or on mount Safa, or in the territory of Tayef. This beast, they say, is to be sixty cubits high; though others, not satisfied with so small a size, will have her reach to the clouds and to heaven; and that she will appear for three days, but show only a third part of her body. They describe this monster, as to her form, to be a compound of various species; having the head of a bull, the eyes of a hog, the ears of an elephant, the horns of a stag, the neck of an ostrich, the breast of a lion, the color of a tiger, the back of a cat, the tail of a ram, the legs of a camel, and the voice of an ass. Some say this beast is to appear three times in several places, and that she will bring with her the rod of Moses, and the seal of Solomon; and, being so swift that none can overtake or escape her, will with the first strike all the believers on the face, and mark them with the word mumen, i. e. believer; and with the latter will mark the unbelievers on the face likewise, with the word cafer, i. e. infidel; that every person may be known for what he really is. They add that the same beast is to demonstrate the vanity of all religions except Islam, and to speak Arabic. 3. War with the Greeks, and the taking of Constantinople by

70,000 of the posterity of Isaac, who shall not win that city by force of arms, but the walls shall fall down while they cry out, There is no God but God; God is most great! As they are dividing the spoil, news will come to them of the appearance of Antichrist; whereupon they shall leave all and return back. 4. The coming of Antichrist, whom the Mahometans call Masib al Dajjal, i. e. the false or lying Christ, and simply al Dajjal. He is to be one-eyed, and marked on the forehead with the letters C. F. R. signifying cafer, or infidel. They say that the Jews gave him the name of Messiah Ben David; and pretend he is to come in the last days, and to be lord both of land and sea, and that he will restore the kingdom to them. 5. The descent of Jesus on earth. They pretend that he is to descend near the white tower to the east of Damascus, when the people are returned from the taking of Constantinople: that he is to embrace the Mahometan religion, marry a wife, beget children, kill Antichrist, and at length die, after forty years, or, according to others, twenty-four years continuance on earth. Under him they say there will be great security and plenty in the world, all hatred and malice being laid aside; when lions and camels, bears and sheep, shall live in peace, and a child shall play with serpents unhurt. 6. War with the Jews; of whom the Mahometans are to make a dreadful slaughter, the very trees and stones discovering such of them as hide themselves, except only the tree called gharkad, which is the tree of the Jews. 7. The eruption of Gog and Magog, or, as they are called in the east, Yajuj and Majuj; of whom many things are related in the Koran and the traditions of Mahomet. These barbarians, they tell us, having passed the lake of Tiberias, which the vanguard of their vast army will drink dry, will come to Jerusalem, and there greatly distress Jesus and his companions; till, at his request, God will destroy them, and fill the earth with their carcasses, which, after some time, God will send birds to carry away, at the prayers of Jesus and his followers. Their bows, arrows, and quivers, the Moslems will burn for seven years together, and at last God will send a rain to cleanse the earth and make it fertile. 8. A smoke which shall fill the whole earth. 9. An eclipse of the moon. Mahomet is reported to have said, that there would be three eclipses before the last hour; one to be seen in the east, another in the west, and the third in Arabia. 10. The returning of the Arabs to the worship of Allat and al Uzza, and the rest of their ancient idols, after the decease of every one in whose heart there was faith equal to a grain of mustard seed, none but the very worst of men being left alive. For God, they say, will send a cold odoriferous wind, blowing from Syria Damascus, which shall sweep away the souls of all the faithful, and the Koran itself, so that men will remain in the grossest ignorance for 100 years. 11. The discovery of a vast heap of gold and silver by the retreating of the Euphrates, which will be the destruction of many. 12. The demolition of the Caaba, or temple of Mecca, by the Ethiopians. 13. The speaking of beasts and inanimate things. 14. The breaking out of

fire in the province of Hejaz; or according to others in Yemen. 15. The appearance of a man of the descendants of Kahtan, who shall drive men before him with his staff. 16. The coming of the Mohdi, or director; concerning whom Mahomet prophesied, that the world should not have an end till one of his own family should govern the Arabians, whose name should be the same with his own name, and whose father's name should also be the same with his father's name, and who should also fill the earth with righteousness. This person the Shiites believe to be now alive, and concealed in some secret place; for they suppose him no other than the last of the twelve Imams, named Mahomet Abulkasem, as their prophet was, and the son of Hassan al Askeri, the eleventh of that succession. He was born at Sermanrai, in the 255th year of the Hejira. From this tradition it is to be presumed, an opinion pretty current among the Christians took its rise; that the Mahometans are in expectation of their prophet's return. 17. A wind which shall sweep away the souls of all who have but a grain of faith in their hearts, as has been mentioned under the tenth sign. These are the greater signs, which, according to their doctrine, as Mr. Sale so ably exhibits it in the introduction to his translation of the Koran, are to precede the resurrection, but still leave the hour of it uncertain; for the immediate sign of its being come, will be the first blast of the trumpet, which they believe will be sounded three times. The first they call the blast of consternation; at the hearing of which all creatures in heaven and in earth shall be struck with terror; not only all buildings, but the very mountains shall be levelled, the heavens shall melt, the sun be darkened, the stars fall (on the death of the angels, who as some imagine hold them suspended between heaven and earth), and the sea shall be troubled and dried up; or, according to others, turned into flames. The Mahometans believe that this first blast will be followed by a second, which they call the blast of exinanition; by which all creatures, both in heaven and earth, shall die or be annihilated, except those which God shall please to exempt from the common fate; and this, they say, shall happen in the twinkling of an eye, nay in an instant; nothing surviving, except God alone, with paradise and hell, the inhabitants of those two places, and the throne of glory. The last who shall die will be the angel of death. Forty years after this will be heard the blast of resurrection, when the trumpet shall be sounded the third time by Israfil, who, together with Gabriel and Michael, will be previously restored to life; and, standing on the rock of the temple of Jerusalem, shall, at God's command, call together all the dry and rotten bones, and other dispersed parts of the bodies, and the very hairs, to judgment. This angel, having, by the divine order, set the trumpet to his mouth, and called together all the souls from all parts, will throw them into his trumpet, whence, on his giving the last sound, at the command of God, they will fly forth like bees, and fill the whole space between heaven and earth, and then repair to their respective bodies, which the opening earth will

suffer to arise; and the first who shall so arise, according to a tradition of Mahomet, shall be himself. For this birth the earth will be prepared by the rain above mentioned, which is to fall continually for forty years, and will resemble the seed of a man, and be supplied from the water under the throne of God, which is called the living water; by the efficacy of which the dead bodies shall spring forth from their graves, as they did in their mother's womb, or as corn sprouts forth by common rain, till they become perfect; after which breath will be breathed into them, and they will sleep in their sepulchres, till they are raised to life at the last trumpet.

When those who have risen shall have waited the limited time, it is believed God will at length appear to judge them; Mahomet undertaking the office of intercessor, after it shall have been declined by Adam, Noah, Abraham, and Jesus, who shall beg deliverance only for their own souls. They say, that on this solemn occasion God will come in the clouds, surrounded by angels, and will produce the books wherein the actions of every person are recorded by their guardian angels, and will command the prophets to bear witness against those to whom they have been respectively sent. Then every one will be examined concerning all his words and actions uttered and done by him in this life. The particulars of which they shall give an account, as Mahomet himself enumerated them, are, of their time, how they spent it; of their wealth, by what means they acquired, and how they employed it; of their bodies, wherein they exercised them; of their knowledge and learning, what use they made of them; each endeavouring to excuse himself, by casting the blame of his evil deeds on others; so that a dispute shall even arise between the soul and the body; the soul, according to this sapient prophet, saying, 'O Lord, my body I received from thee; for thou createdst me without a hand to lay hold with, a foot to walk with, an eye to see with, or an understanding to apprehend with, till I came and entered into this body; therefore punish it eternally, but deliver me.' The body, on the other side, making this apology: 'O Lord, thou createdst me like a stock of wood, having neither hand that I could lay hold with, nor foot that I could walk with, till this soul, like a ray of light, entered into me, and my tongue began to speak, my eye to see, and my foot to walk; therefore punish it eternally, but deliver me.' But now will be propounded to them the following parable:—'A certain king having a pleasant garden, in which were ripe fruits, set two persons to keep it, one of whom was blind, and the other lame; the former not being able to see the fruit, nor the latter to gather it; the lame man, however, seeing the fruit, persuaded the blind man to take him upon his shoulders, and by that means he easily gathered the fruit, which they divided between them. The lord of the garden coming some time after, and enquiring after his fruit, each began to excuse himself: the blind man said he had no eyes to see with; and the lame man that he had no feet to approach the trees. But the king, ordering the lame man to be set on the blind, passed sentence on and punished them both.

And in the same manner will God deal with the body and the soul.' At this examination, they also believe, that each person will have the book wherein all the actions of his life are written delivered to him; which books the righteous will receive into their right hand, and read with great pleasure and satisfaction; but the ungodly will be obliged to take them against their wills, in their left, which will be bound behind their backs, their right hand being tied up to their necks. To show the exact justice which will be observed, on this great day of trial, the doctors describe the balance, wherein all things shall be weighed. They say it will be held by Gabriel; and that it is of so vast a size, that its two scales, one of which hangs over paradise, and the other over hell, are capacious enough to contain both heaven and hell. But some are willing to understand what is said in the Koran concerning this balance allegorically, and only as a figurative representation of God's equity; the more ancient and orthodox opinion, however, is that they are to be taken literally. They say that the books wherein the actions of men are written will be thrown into the scales, and, according as those wherein the good or evil actions are recorded shall preponderate, sentence will be given; nor will any one have cause to complain that God suffers any good action to pass unrewarded, because the wicked, for the good they do, have their reward in this life, and therefore can expect no favor in the next.

This examination being past, mutual retaliation will follow, according to which every creature will take vengeance one of another, or have satisfaction made them for the injuries they have suffered. And, since there will then be no other way of returning like for like, the manner of giving this satisfaction will be by taking away a proportional part of the good works of him who offered the injury, and adding it to those of him who suffered it. Which being done, if the angels (by whose ministry this is to be performed) say, 'Lord, we have given to every one his due, and there remaineth of this person's good works so much as equalleth the weight of an ant,' God will, of his mercy, cause it to be doubled unto him, that he may be admitted into paradise; but if, on the contrary, his good works be exhausted, and there remain evil works only, and there be any who have not yet received satisfaction from him, God will order that an equal weight of their sins be added unto his, that he may be punished for them in their stead, and he will be sent to hell laden with both. Brutes shall likewise take vengeance of one another, when God will command them to be changed into dust; while wicked men, being reserved to more grievous punishment, shall cry out, 'would to God we were dust also.' As to the genii, many Mahometans are of opinion, that such of them as are true believers will undergo the same fate as the irrational animals, and have no other reward than the favor of being converted into dust; and for this they quote the authority of their prophet. Their trial being over, those who are to be admitted into paradise will take the right-hand way, and those who are destined to hell the left; but both must first pass the bridge called in Arabic

al Sirat, which they say is laid over the midst of hell, and describe to be finer than a hair, and sharper than the edge of a sword. The Motazalites reject the account of this bridge as a fable; though the orthodox think it a sufficient proof of the truth of this article, that it was seriously affirmed by him who never asserted a falsehood, meaning their prophet; who, to add to the difficulty of the passage, has likewise declared, that al Sirat is beset on each side with briars and hooked thorns: which will, however, be no impediment to the good; for they shall pass with wonderful ease and swiftness, like lightning, or the wind, Mahomet and his Moslems leading the way; whereas the wicked will miss their footing, and fall down headlong into hell, which is gaping beneath them. This, the Mahometans are taught, is divided into seven stories or apartments, one below another, designed for the reception of as many distinct classes of the damned. The 1st, Jehennam, they say, will be the receptacle of those who acknowledge one God, that is, the wicked Mahometans; who, after having been there punished according to their demerits, will at length be released. The 2d, named Ladhā, they assign to the Jews; the 3d, al Hottama, to the Christians; the 4th, al Sair, to the Sabians; the 5th, Sakar, to the Magians; the 6th, al Jahim, to the idolaters; and the 7th, which is the lowest and worst of all, and is called Hawyat, to the hypocrites, or those who outwardly professed some religion, but in their hearts were of none. Over each of these apartments they believe there will be set a guard of angels, nineteen in number, to whom the damned will confess the just judgment of God, and beg them to intercede with him for some alleviation of their pain, or that they may be delivered by being annihilated. Mahomet has, in the Koran, been very exact in describing the various torments of hell, in which, according to him, the wicked will suffer both from intense heat and excessive cold. But infidels alone will be liable to eternal damnation. The time which the true believers shall be detained there, according to a tradition handed down from the prophet, will not be less than 900 years, nor more than 7000. They will be released by the mercy of God, at the intercession of Mahomet and the blessed.

The righteous, having surmounted the difficulties, and passed the sharp bridge above-mentioned, before they enter paradise, will be refreshed by drinking at the pond of their prophet, who describes it to be an exact square of a month's journey in compass; its water, which is supplied by two pipes from al Cawthar, one of the rivers of paradise, being whiter than milk or silver, and more odoriferous than musk, with as many cups set round it as there are stars in the firmament; of which water whosoever drinks will thirst no more for ever. This is the first taste which the blessed will have of their future and now near approaching felicity. Though paradise be so very frequently mentioned in the Koran, yet it is a dispute among the Mahometans whether it be already created, or to be created hereafter; the Motazalites and some other sects asserting, that there is not at present any such place, and that the paradise which the righteous will inhabit in

the next life will be different from that from which Adam was expelled. However, many of the orthodox profess the contrary, maintaining that it was created even before the world. They say it is situated above the seven heavens (or in the seventh heaven), and next under the throne of God; to express the amenity of the place, they tell us, that the earth of it is of the finest wheat-flour, or of the purest musk; that its stones are pearls and jacinths, the walls of its buildings enriched with gold and silver, and that the trunks of all its trees are of gold: among which the most remarkable is Tuba, or the tree of happiness. Concerning this tree, they say, that it stands in the palace of Mahomet, though a branch of it will reach to the house of every true believer; that it will be laden with pomegranates, grapes, dates, and other fruits, of surprising bigness, and of tastes unknown to mortals. So that if a man desire to eat of any particular kind of fruit, it will immediately be presented him; or, if he choose flesh, birds ready dressed will be set before him, according to his wish. They add, that the boughs of this tree will spontaneously bend down to the hand of the person who would gather of its fruits; that it will supply the blessed not only with food, but also with silken garments, and beasts to ride on ready saddled and bridled, and adorned with rich trappings (which will burst forth from its fruits); and that this tree is so large, that a person, mounted on the fleetest horse, would not be able to gallop from one end of its shade to the other in 100 years. The Koran often speaks of the rivers of paradise as a principal ornament: some of these, they say, flow with water, some with milk, some with wine, and others with honey; all taking their rise from the root of the tree tuba. Even these glories however will be eclipsed by the resplendent and ravishing girls of paradise, called, from their large black eyes, Hur al oyun, or houries, the enjoyment of whose company will be a principal felicity of the faithful. These, they say, are created, not of clay, as mortal women are, but of pure musk; being free from all natural impurities and defects; of the strictest modesty, and secluded from public view in pavilions of hollow pearls, so large, that one of them will be no less than four parasangs (or sixty miles) long, and as many broad. The name which the Mahometans usually give to this happy mansion is al Jannat, or the garden; sometimes they call it Jannat al Ferdaws, the garden of paradise; Jannat Aden, the garden of Eden; Jannat al Mawa, the garden of abode; Jannat al Naim, the garden of pleasure, &c., by which appellations some understand so many different gardens, or places of different degrees of felicity, of which they reckon no fewer than 100. The Mahometans believe in God's absolute decree and predestination both of good and evil. The orthodox doctrine is, that whatever hath or shall come to pass in this world, whether good or evil, proceedeth entirely from the divine will, and is irrevocably fixed and recorded from all eternity in the preserved table: God having predeetermined not only the adverse and prosperous fortune of every person in this world, in the most minute particulars, but also his faith or infidelity, his obedience

or disobedience, and consequently his everlasting happiness or misery after death; which fate or predestination it is not possible by any foresight or wisdom to avoid. Of this doctrine Mahomet made great use for the advancement of his designs, encouraging his followers to fight without fear, and even desperately, for the propagation of their faith, by representing to them, that all their caution could not avert their inevitable destiny, or prolong their lives for a moment; and deterring them from disobeying or rejecting him as an impostor, by setting before them the dangers they might thereby incur of being, by the just judgment of God, abandoned to seduction, hardness of heart, and a reprobate mind, as a punishment for their obstinacy. It is quite clear that this doctrine has been the chief basis of the desperate courage of his followers for ages.

MAHOMETAN RELIGIOUS PRACTICE.—The first point of religious practice in the creed of Musulmans is *prayer*, under which are comprehended those legal washings which are necessary preparations for it. Of these there are two degrees, one called *ghost*, being a total immersion or bathing of the body in water: and the other called *wodu*, which is the washing of their faces, hands, and feet, after a certain manner. The first is required in some cases only, as, after approaching a dead body; women are also obliged to it after their courses or childbirth: the latter is the ordinary ablution before prayer, and must necessarily be used by every person before he can enter upon that duty. Mahomet is said to have declared that the practice of religion is founded on cleanliness, which is the one-half of the faith, and the key of prayer, without which it will not be heard by God. Al Ghazali reckons four degrees of purification; viz. 1st, cleansing of the body from all pollution, filth, and excrements; 2dly, cleansing the members of the body from all wickedness and injustice; 3dly, cleansing the heart from all blameable inclinations and odious vices; and, 4thly, purging a man's secret thoughts from all affections which may divert their attendance on God. Circumcision, though it be not once mentioned in the Koran, is yet held by the Mahometans to be an ancient divine institution, confirmed by the religion of Islam, and, though not so absolutely necessary but that it may be dispensed with in some cases, yet highly proper and expedient. The Arabs used this rite for many ages before Mahomet, having learned it from Ishmael their ancestor. The Ishmaelites circumcised their children when about twelve or thirteen years old, at which age their father underwent that operation; the Mahometans imitate them so far as not to circumcise their children before they be able, at least, distinctly to pronounce that profession of their faith, There is no God but God; Mahomet is the apostle of God. They generally perform the operation between six and sixteen.

Prayer Mahomet thought so necessary a duty, that he used to call it the pillar of religion, and the key of paradise; and when the Thakisites, who dwelt at Tayef, sending, in the 49th year of the Hegira, to make their submission to the prophet, after the keeping of their favorite idol had been denied them, begged, at least, that they

might be dispensed with as to their saying of their appointed prayers, he answered, That there could be no good in that religion wherein was no prayer. That so important a duty, therefore, might not be neglected, Mahomet obliged his followers to pray five times every twenty-four hours, at certain stated times; viz. 1. In the morning before sun-rise; 2. When noon is past, and the sun begins to decline from the meridian; 3. In the afternoon, before sun-set; 4. In the evening, after sun-set, and before day be shut in; and, 5. After the day is shut in, and before the first watch of the night. At these times, of which public notice is given by the muehdhins, or criers, from the steeples of their mosques (for they use no bells), every conscientious Moslem prepares himself for prayer, which he performs either in the mosque or any other place, provided it be clean, after a prescribed form, and with a certain number of praises or ejaculations (which the more scrupulous count by a string of beads), and using certain postures of worship; all which have been particularly set down and described, and must not be abridged, unless on a journey, or preparing for battle, &c. It is also requisite that they turn their faces, while they pray, towards the temple of Mecca; the quarter where the same is situated being, for that reason, pointed out within their mosques by a niche, which they call al Mehrab; and without, by the situation of the doors opening into the galleries of the steeples: there are also tables calculated for the ready finding out their keblah, or part towards which they ought to pray, in places where they have no other direction.

2. *Alms* are of two sorts, legal and voluntary. The legal alms are of indispensable obligation, being commanded by the law, which directs and determines both the portion which is to be given, and of what things it ought to be given; but the voluntary alms are left to every one's liberty, to give more or less, as he shall see fit. The former kind are called *zacad*, either because they increase a man's store by drawing down a blessing thereon, or because they purify the remaining part of one's substance from pollution, and the soul from the filth of avarice: the latter *sadakat*, because they are a proof of a man's sincerity in the worship of God.

3. *Fasting* is also a duty of so great moment, that Mahomet used to say it was the gate of religion, and that the odor of the mouth of him who fasteth is more grateful to God than that of musk; Ghazali reckons fasting one-fourth part of the faith. According to the Mahometan divines, there are three degrees of fasting; 1. The restraining the belly and other parts of the body from satisfying their lusts; 2. The restraining the ears, eyes, tongue, hands, feet, and other members, from sin; and, 3. The fasting of the heart from worldly cares, and restraining the thoughts from every thing besides God. The Mahometans are obliged, by the Koran, to fast the whole month of Ramadan, from the new moon till the next new moon; during which they must abstain from eating, drinking, and women, from day-break till night or sun-set. And this injunction they observe so strictly, that, while they fast, they suffer nothing to enter their mouths,

or other parts of their body, esteeming the fast broken and null, if they smell perfumes, take a clyster or injection, bathe, or even purposely swallow their spittle: the fast is also deemed void, if a man kiss or touch a woman. But after sun-set they are allowed to refresh themselves, and discontinue the fast till day-break; though the more rigid begin it again at midnight. This fast is extremely rigorous when the month of Ramadan happens to fall in summer (for, the Arabian year being lunar, each month runs through all the different seasons in the course of thirty-three years), the length and heat of the days making the observance of it much more difficult than in winter. The reason given why the month Ramadan was pitched on for this purpose is, that in that month the Koran was sent down from heaven.

4. The pilgrimage to Mecca is so necessary a point of practice, that, according to a tradition of Mahomet, he who dies without performing it may as well die a Jew or a Christian. The temple of Mecca stands in the midst of the city, and is honored with the title of Masjad al elharum, i. e. the sacred or inviolable temple. What is principally revered here, and gives sanctity to the whole, is a square stone building, called the Caaba; to which every Mahometan, who has health and means sufficient, ought, once at least in his life, to go on pilgrimage; nor are women excused. The pilgrims meet at different places near Mecca, according to the different parts whence they come, during the months of Shawal and Dhulkaada; being obliged to be there by the beginning of Dhulhajja; which month is set apart for the celebration of this solemnity. At these places the pilgrims properly commence such; when the men put on the Ibraam or sacred habit, which consists of two woollen wrappers, one wrapped about their middle, and the other thrown over their shoulders, having their heads bare, and a kind of slippers which cover neither the heel nor the instep, and so enter the sacred territory in their way to Mecca. While they have this habit on, they must neither hunt nor fowl (though they are allowed to fish); which precept is so punctually observed, that they will not kill even an insect on their bodies: there are some noxious animals, however, which they have permission to kill during the pilgrimage. During the pilgrimage it behoves a man to have a constant guard over his words and actions; to avoid all quarrelling, and all converse with women; and to apply his whole attention to the good work he is engaged in. The pilgrims, being arrived at Mecca, immediately visit the temple; and then enter on the performance of the prescribed ceremonies, which consist chiefly in going in procession round the Caaba, in running between the mounts Safa and Merwa, in making the station on mount Araf, and slaying the victims, and shaving their heads in the valley of Mina. So often as they pass by the black stone, they either kiss it, or touch it with their hand and kiss that. The running between Safa and Merwa is performed seven times, partly with a slow pace, and partly running. On the 9th of Dhulhajja, after morning prayer, the pilgrims leave the valley of Mina, whither they came the

day before; and proceed in a tumultuous and rushing manner to mount Arafat, where they perform their devotions till sun-set; then they go to Mozdalifa, an oratory between Arafat and Mina, and there spend the night in prayer and reading the Koran. The next morning, by day-break, they visit al Mashar al Karam, or the sacred monument; and, departing thence before sun-rise, haste by Batn Mohasser to the valley of Mina, where they throw stones at three marks or pillars, in imitation of Abraham, who, meeting the devil in this place, and being by him disturbed in his devotions, was commanded by God to drive him away by throwing stones at him. This ceremony being over, on the same day, the 10th Dhulhajja, the pilgrims slay their victims in the valley; of which they and their friends eat part, and the rest is given to the poor. The sacrifices being over, they shave their heads and cut their nails, burying them in the same place; after which the pilgrimage is regarded as complete: though many again visit the Caaba, to take their leave of that sacred building.

The rapid success which attended the propagation of this religion was owing to causes that are plain and evident, and must remove all surprise when they are attentively considered. The terror of Mahomet's arms, and the repeated victories which were gained by him and his successors, were, no doubt, the irresistible arguments that persuaded multitudes to embrace his religion, and submit to his dominion. Besides, his law was artfully and marvellously adapted to the corrupt nature of man; and, more particularly, to the manners and opinions of the eastern nations, and the vices to which they were addicted: for the articles of faith which it proposed were few in number, and extremely simple; and the duties it required were neither many nor difficult; nor such as were incompatible with the empire of appetite and passions. It is to be observed farther, that the gross ignorance under which the Arabians, Syrians, Persians, and the greatest part of the eastern nations, labored at the time, rendered many an easy prey to the artifice and eloquence of this bold adventurer. To these causes of the progress of Mahometanism we may add the bitter dissensions and cruel animosities that reigned among the Christian sects, particularly the Greeks, Nestorians, Eutychians, and Monophysites; dissensions that filled a great part of the east with carnage, assassinations, and such detestable enormities, as rendered the very name of Christianity odious. It is well known that the Monophysites and Nestorians, full of resentment against the Greeks, from whom they had suffered the most injurious treatment, assisted the Arabians in the conquest of several provinces, into which, of consequence, the religion of Mahomet was afterwards introduced.

MAHOMMED-AMEENPORE, a large district of 700 square miles, on the western bank of the Bhaggarutty, in Bengal, comprehending Hoogly, and all the other European towns on the western side of the river.

MAHRATTAS, a native Hindostan race possessing till recently a territory in India, which extended across the peninsula. Their original country is said to have been Khandeish; but

little is known of their history, till the middle of the seventeenth century, when they possessed a narrow tract on the western side of Hindostan, extending from the fifteenth to the twenty-first degree of latitude. The first distinguished chief of this nation was Sevajee, born about the year 1626; he and his descendants asserting that they were of the same family as the rajahs of Odeypore, who claim a descent from the celebrated Noushirvan, king of Persia, who reigned in the seventh century. The father of Sevajee named Sahoo Bhosila, or Bhoonsla, was an officer in the service of the last Mahomedan king of Bejapore; and his son, who succeeded to his command, taking advantage of the Mogul invasion retired with his followers to the mountains of the sea coast, whence he returned to carry his ravages into the heart of the Bejapore territories. He also carried on a successful war against the Moguls, and obtained possession of several portions of that empire. He died in 1680, and was succeeded by Sambajee, who was taken prisoner and put to death in the year 1689 by the emperor Aurungzebe. Sahoo Rajah, the son of Sambajee in a reign of nearly fifty years extended his dominions from sea to sea, and had possession of fortresses reaching from the province of Agra to Cape Comorin. This monarch was succeeded in the year 1740 by Ram Rajah, his son, a weak prince, who was confined in the fortress of Sattarah by the two chief officers of the state, viz. the peishwa, or prime minister, Bajeerow, and the paymaster-general Ragogee. The former fixed his residence at Poonah, and the latter founded a new kingdom at NAGPORE, which see.

In order to conciliate other chiefs, they granted them extensive independent principalities, the foundations of all the modern Mahratta states. Bajeerow died in 1759, and was succeeded by his son Ballajeerow, when the office of peishwa became hereditary. In 1761 the Mahrattas, having extended their conquests to the city of Delhi, were on the 7th of January opposed and totally defeated by the united Mahomedan armies under the command of Ahmed Shah, Abdally. Balajee died soon after this event, and was succeeded by his son Madhoorow, who died in 1772, and grandson Narrainrow murdered in the following year, at the instigation of his uncle Ragobah; the latter, having been disappointed in getting possession of the throne, fled to Bombay, a circumstance which brought on a war between the Mahrattas and the British. See our article **INDIA**.

A posthumous son of Madhoorow, of the same name, succeeded to the peishwaship, but died in 1795. On this event the two sons of Ragobah contended for the office, and the cause of the eldest brother, named Bajeerow, was espoused by Scindia, who fixed him on the throne in a nominal sovereignty. In 1802 Holkar defeated the united armies of Scindia, and the peishwa; and the latter, having been compelled to take refuge in the British territory, entered into the treaty of Bassein, with the Bombay government, by which he agreed to receive into his pay a force of 6000 infantry, with their usual proportion of artillery, and gave an assignment of ter-

ritory for their support. In consequence of this treaty the peishwa was in the month of May 1803 reinstated at Poonah. Lord Lake's defeat of Scindia, the overthrow of Holkar, and the peace concluded with the Mahratta chiefs in 1805, are detailed in the article INDIA. It will be seen that in 1817 the peishwa made a fresh attempt at independence: a circumstance which may be said to have annihilated his authority; as the descendant of Ram Rajah has been since brought out from his confinement, and placed on the throne of his ancestors under British protection.

The Mahrattas are not very scrupulous Hindoos, all of them but the Brahmins being careless of what they eat except beef. They are fond of horses, and their army was almost entirely composed of cavalry, the celerity of whose motions and sudden incursions alone rendered them formidable: their arms were a sword and spear, and their only camp equipage blankets or horse cloths. They would march at the rate of fifty miles a day; and not content with plunder often carried away children into slavery, and used the female sex barbarously. Their Brahmins are many of them polished and insidious merchants.

MAIA, in fabulous history, the daughter of Atlas and Pleione. She was the mother of Mercury by Jupiter. She was one of the Pleiades, and the most luminous of the seven sisters.

MAIA, a surname of Cybele.

MAID, or	Sax. <i>may</i> , <i>mæben</i> ,
MAID'EN, <i>n. s.</i>	<i>mægden</i> ; Goth. <i>may</i> ,
MAID'ENHAIR, <i>n. s.</i>	<i>mæjd</i> ; Belg. <i>mægd</i> , <i>mcid</i> ;
MAID'ENHEAD, or	Teut. <i>magd</i> , the femi-
MAID'ENHOOD, <i>n. s.</i>	nine of <i>mag</i> , <i>mac</i> , a son.
MAID'ENLY, <i>adj.</i>	A girl; an unmarried
MAID'HOOD, <i>n. s.</i>	woman; a virgin; a fe-
MAIDMARIAN, or	male; a female servant:
MAID'-PALE, <i>adj.</i>	maidenhair is a plant,
MAID'-SERVANT, <i>n. s.</i>	the ADIANTHUM, which

see: maidenhead, maidenhood, or maidhood, virginity; purity; and, in an obsolete sense, newness; freshness: maidently, like or becoming a maid; gentle; timid; delicate: maidmarian, a species of buffoon-dance: maid-pale, pale with sickness, or a trifling complaint: maid-servant, a female servant.

If she bear a maid child. *J. v. xii. 5.*

Your wives, your daughters,
Your matrons, and your maids, could not fill up
The cistern of my lust. *Shakspeare. Macbeth.*

This is a man old, wrinkled, faded, withered,
And not a maiden, as thou say'st he is. *Shakspeare.*

My maid Nerissa and myself, mean time,
Will live as maids and widows. *Id.*
He fleshed his maiden sword. *Id.*

'Tis not maidently;
Our sex, as well as I, may chide you for it. *Id.*

The devil and mischance look big
Upon the maidenhood of our affairs. *Id.*

By maidhood, honour, and every thing,
I love thee *Id. Twelfth Night.*

Example, that so terrible shews in the wreck of
maidenhood, cannot for all that dissuade succession,
but that they are limed with the twigs that threaten
them. *Shakspeare.*

Change the complexion of her maidpale peace
To scarlet indignation. *Id.*

And, for the modest lore of maidenhood,
Bids me not sojourn with these armed men.

Oh whither shall I fly? what sacred wood
Shall hide me from the tyrant? or what den?

Fairfax.
She hated chambers, closets, secret mewes,
And in broad fields preserved her maidenhead. *Id.*

Some, who attended with much expectation,
at their first appearing have stained the maidenhead of
their credit with some negligent performance.

Wotton.
She employed the residue of her life to repairing of
highways, building of bridges, and endowing of
maidens. *Carew.*

June is drawn in a mantle of dark grass green,
upon his head a garland of bent, king-s-cup, and
maidenhair. *Peucham.*

Hope's chaste kiss wrongs no joys maidenhead,
The spousal rites prejudge the marriage-bed.

Crusshaw.
Maidenhood she loves, and will be swift
To aid a virgin. *Milton.*

A set of morrice-dancers danced a maidmarian with
a tabor and pipe. *Temple*

Let me die, she said,
Rather than lose the spotless name of maid. *Dryden.*

Old Tancred visited his daughter's bower;
Her cheek, for such his custom was, he kissed,
Then blessed her kneeling, and her maids dismissed. *Id.*

Her closet and the gods share all her time,
Except when, only by some maids attended,
She seeks some shady solitary grove. *Rowe.*
Nor was there one of all the nymphs that roved
O'er Mænalus, amid the maiden throng,
More favoured once. *Addison's Ovid.*

A thousand maidens ply the purple loom,
To weave the bed, and deck the regal room.

Prior.
It is perfectly right what you say of the indifference
in common friends, whether we are sick or well; the
very maidservants in a family have the same notion. *Swift.*

'Tis all mere sharper's play;
He likes your house, your house-maid, and your pay;
Reduce his wages, or get rid of her,
Tom quits you, with—Your most obedient, Sir. *Cowper.*

MAIDA, a town of Calabria Ultra, Naples,
nine miles W. S. W. of Squillace, chiefly remark-
able as the scene of a gallant action between the
British and French, 4th of July 1806; in which
the latter were defeated. Population 3000.

MAIDEN. See MAID.

MAIDEN, or MAYDEN, an instrument anciently
used in Scotland for beheading criminals, simi-
lar to the GUILLOTINE, which see.

MAIDEN is also the name of a machine first
used in Yorkshire, and since introduced into
other places, for washing linen; consisting of a tub
nineteen inches high, and twenty-seven in dia-
meter at the top, in which the linen is put, with
hot water and soap, to which is adapted a cover,
fitting it very closely, and fastened to the tub by
two wedges; through a hole in the middle of the
cover passes an upright piece of wood, kept at a
proper height by a peg above, and furnished with
two handles, by which it is turned backward and
forward: to the lower end of this upright piece

is fastened a round piece of wood, in which are fixed several pieces, like cogs of a wheel. The operation of this machine makes the linen pass and repass quickly through the water.

MAIDEN-RENTS, in old English writers, a noble paid by the tenants of some manors on their marriage. This was said to be given to the lord for his omitting the custom of marcheta, whereby he was to have the first night's lodging with his tenant's wife; but it seems more probably to have been a fine for a license to marry a daughter.

MAIDENHAIR. See **ADIANTHUM**.

MAIDENHAIR, GOLDEN. See **POLYTRICHUM**.

MAIDENHEAD, a town of Berkshire, twenty-six miles from London, with a stone bridge over the Thames. It is governed by a high steward, a mayor, a steward, and ten aldermen, two of whom are appointed bridgemasters every year. The mayor is justice of the peace, coroner, and clerk of the market: he is also judge of a court which he must hold once in three weeks, exclusive of two sessions in the year. The town stands partly in the parish of Bray and partly in that of Cookham, and has a chapel belonging to the corporation, the minister of which is chosen by the inhabitants and not obliged to attend the bishop's visitation. It has a gaol, with several almshouses and charities. The large-pier bridge is maintained by the corporation, for which they are allowed the tolls over and under it. This town has a great trade in malt, meal, and timber, which are brought in barges to London. As this is the great thoroughfare from London to Bath, Bristol, &c., the adjacent wood has been noted for robberies. There is a market on Wednesday, three fairs, and horse-races.

MAIDSTONE, the county town of Kent, is advantageously situated on the eastern bank of the Medway, over which is an ancient stone bridge of seven arches, which has been lately widened and improved. Some antiquaries have considered it as the Vagniacæ of Antoninus. The Saxons termed it Medwegestun, from its situation on the Medwedge, or Medway. In the record of Domesday the name is written Meddestane. The town is pleasant, large, and populous, consisting of four principal streets, which intersect each other near the site of the ancient market cross. This fabric was taken down about twenty years ago, and in its place a commodious fish-market was erected, where is an ample reservoir of spring water, conducted from the opposite side of the river.

The town was governed by a portreve and twelve brethren, till Edward VI., in his third year, newly incorporated it by the style and title of the mayor, jurats, and commonalty, of Maidstone. Their privileges were soon afterwards, however, forfeited by rebellion in the first year of queen Mary. But queen Elizabeth, in her second year, re-incorporated it, as before; and granted some additional privileges. A third charter of incorporation, with new privileges, was granted in 1604 by James I.; and a fourth in 1619. King Charles II., in his thirty-fourth year, incorporated it anew by the above style and title; which charter was in force until the revolution in 1688, after which it was laid aside.

In 1748, the corporation being dissolved by judgment of ouster against its principal members, a new charter was granted by king George II., in which it is stated, that the inhabitants shall be one body politic and corporate, by the name of 'the mayor, jurats, and commonalty, of the king's town and parish of Maidstone, in the county of Kent,' and by that name have perpetual succession, and acquire and hold lands, &c., and alien the same; that by the aforementioned name they are to plead and be impleaded, &c.; under a common seal, and might break, change, and new make the same at their liking; that there should be thirteen inhabitants of the town and parish, who should be chosen jurats of the same, one of whom should be mayor; and that there should be forty of the remaining principal inhabitants chosen common council-men, all of whom, viz. mayor, jurats, and common council-men, duly assembled, should have power upon public summons to make bye laws. By the above charter the corporation at present act. Queen Elizabeth, in her second year, granted to the mayor, &c., a market on a Thursday weekly, with all tolls, customs, and other profits, and also four fairs. King James regranted and confirmed the fairs and markets, and other liberties and privileges; and further granted that it should be lawful for the mayor to extend the market beyond the market-place, or to hold it in any other place within the town.

Queen Elizabeth also granted the mayor, jurats, and commonalty, full power to hold a court in the town, from fourteen days to fourteen days, on a Tuesday, 'for pleas, as well of assize of novel disseisin, as other pleas, actions, and suits, concerning lands, &c., in the town and parish, although they should or should not exceed the sum of 40s.' And the mayor, jurats, and recorder, as steward, annually hold a court leet, or law day, formerly called the portmote, at which among other business the peace officers are chosen, viz. a high constable for the town and parish, and a borsolder for each of the three boroughs of Week, West Street, and Stone, into which the town and parish are divided.

This town and parish, with others in the neighbourhood, were formerly bound to contribute to the repair of the fifth pier of Rochester Bridge.

The chief source of the wealth of this town has arisen from the cultivation of hops, in which pursuit the principal inhabitants are engaged; but no species of natural produce is subject to such abrupt and decisive vicissitudes.—The manufacture of linen thread was introduced here from Flanders, in the reign of Elizabeth, and is still continued. Within the last fifty years also it has been famous for the distillation of a spirit termed Maidstone Geneva: but this is now discontinued.

This town derives great advantage from the navigation of the river Medway, as a considerable traffic is carried on by it from hence to Rochester, Chatham, and London; and, from the many large corn mills, abundance of meal and flour is shipped off to the above towns, as well as to London. The paper-mills, in and near this town, are also considerable. Great quantities of

timber brought hither from the Weald of Kent, and its neighbourhood, by land carriage, are conveyed by the navigation of the Medway to the dock at Chatham, and more distant parts. Besides which there are several large hoys which sail to and from London weekly. The Medway is navigable as far as Tonbridge.

The church stands at the western part of the town, and is a spacious and handsome structure, formerly collegiate; consisting of a nave, chancel, and two side aisles, with a handsome well-built tower at the west end. It is one of the largest parochial churches in the kingdom, and was chiefly erected in the reign of Richard II., by archbishop Courteney. The stalls for the warden and fellows of the college are still remaining. In the middle of the great chancel there is a tomb-stone, raised a little above the pavement, with the marks of the portraiture of a bishop in his mitre and robes, and an inscription round it; but the brass of the whole is torn away. This is supposed to be the cenotaph of archbishop Courteney. The college founded by this prelate was an extensive pile of stone, and most of the buildings, with the great gate, are standing, on the south side of the church, but are now occupied by an agriculturist, who uses some of the apartments as an oasting house. There are, also, many other vestiges of ancient religious buildings in this town and its vicinity. A stock market is held on the second Tuesday in each month in a place called the Meadow, close to the Medway: the fairs are also held in this place on the 13th of February, 12th of May, 20th of June, and 17th of October.

In the year 1648 the town held out some time for Charles I., but at last general Fairfax took it by storm.

Amongst the public buildings of Maidstone, its gaol stands pre-eminent. This ponderous and extensive fabric was commenced in the year 1811, and completed in 1818. It is intended as a prison for the use both of the county and town. The ground comprised within the walls is between thirteen and fourteen acres, and the building is capable of holding 450 prisoners. The structure of brick is faced with rag stone chiefly dug from the site which it occupies. The plan on which it is arranged would appear to be extremely judicious. Each class of prisoners has a distinct airing-yard, and each prisoner a separate sleeping cell. The expense of the erection was about £180,000. In front has been added a handsome sessions house of Portland stone, with a spacious area, surrounded by iron railing. The whole cost the county, it is said, upwards of £30,000. In the vicinity is also an extensive depot, in which are trained the cavalry destined for the East India service.

The chief part of this town has been greatly improved since the year 1791, at which time an act was obtained for lighting and newly paving the principal streets: gas lights are now introduced. Among the many charitable institutions, for the benefit of the poor, are a grammar school, five charity schools, and a savings bank.

Maidstone sends two members to parliament, who are elected by all freemen not receiving *alms* or charity; of these there are about 800.

The newly erected Kent fire office forms a very prominent feature in the High Street opposite the town hall: it is an extensive building fronted with Portland stone; a uniform frontage is continued beyond the office, the upper part of which forms a part of a new tavern, and the lower part is used as a corn market. Behind stand the poultry, meat, fish, and vegetable markets, lately erected at a great expense, and extending into East Street. The different market buildings which before stood in the High Street are now all taken down.

About a mile south-east of the town is a seat termed the Mote, belonging to the earl of Romney. The ancient house on this estate was taken down some few years back, and the present structure erected on a knoll commanding some fine views. The park is extensive, and is enriched by much venerable timber. On the 1st of August 1799 the late lord Romney (then lord lieutenant of the county) entertained his majesty George III., several other branches of the royal family, many of the cabinet ministers, a numerous company of the principal noblemen and gentlemen of the kingdom, and the whole of the volunteers of the county. A stone building is erected on the spot where the king's marquee stood.

MAJESTIC, or	Lat. <i>majestas</i> ; Gr.
MAJESTICAL, <i>adj.</i>	<i>μεγας</i> , great. August;
MAJESTICALLY, <i>adv.</i>	grand; sublime; im-
MAJESTY, <i>n. s.</i>	perial; regal: majesty

is dignity; grandeur; regal or imperial sway; a title of those who bear such sway; great or awful appearance, or effect.

In lyk maner also these that defoulen the fleasche, and dispisen lordschip, and blasfemen *majestee*.

Wiclif. Jud. 1.

Thine, O Lord, is the power and *majesty*.

1 Chron. xxix.

The voice of the Lord is full of *majesty*.

Psaln xxix. 4.

He gave Nebuchadnezzar thy father *majesty*.

Dan. v. 18.

It was no mean thing which he purposed; to perform a work so *majestical* and stately was no small charge.

Hooker.

Most royal *majesty*,

I crave no more than what your highness offered. Nor will you tender less. *Shakspeare. King Lear.*

They made a doubt

Presence *majestical* would put him out:

For, quoth the king, an angel shalt thou see,

Yet fear not thou, but speak audaciously.

Shakspeare.

Get the start of the *majestick* world,

And bear the palm alone.

Shakspeare. Julius Caesar.

Which passage doth not only argue an infinite abundance, both of artizans and materials, but likewise of magnificent and *majestical* desires in every common person.

Wotton.

The *hugeness* of thy work, O God, is little inferior for admiration to the *majesty* of it.

Bp. Hall.

In his face

Sate meekness, heightened with *majestick* grace.

Denham.

He, who had been always believed a creature of the queen, visited her *majesty* but once in six weeks.

Clarendon.

Amidst

Thick clouds, and dark, doth Heaven's all ruling Sire Chuse to reside, his glory unobscured,

And with the *majesty* of darkness round
Covers his throne. *Milton's Paradise Lost.*

I have a garden open to the sea,
From whence I can your *majesty* convey
To some nigh friend. *Waller.*

The first in loftiness of thought surpassed,
The next in *majesty*. *Dryden.*

The least portions must be of the epic kind ; all
must be grave, *majestical*, and sublime. *Id.*

From Italy a wandering ray
Of moving light illuminates the day ;
Northward she bends, *majestically* bright,
And here she fixes her imperial light. *Granville.*

Great, without pride, in sober *majesty*. *Pope.*

A royal robe he wore with graceful pride,
Embroidered sandals glittered as he trod,
And forth he moved, *majestick* as a god. *Pope's Odyssey.*

So have I seen in black and white,
A prating thing, a magpie hight,
Majestically stalk ;

A stately worthless animal,
That plies the tongue, and wags the tail,
All flutter, pride, and talk. *Swift.*

Wherefore darts the mind,
With such resistless ardour to embrace
Majestic forms. *Akenside.*

Girt with many a baron bold,
Sublime their starry fronts they rear ;
And gorgeous dames, and statesmen old,
In bearded *majesty* appear. *Gray.*

MAJESTY is derived from major, Lat. greater, and status, state. The emperor of Austria is called his imperial apostolic majesty. The king of Spain, his most Catholic majesty ; and the king of Portugal, his most Faithful majesty. The king of France is called his most Christian majesty. As to other kings, the name of the kingdom is prefixed ; as his Britannic majesty, his Sardinian majesty, &c. ; before the reign of Charles V. the king of Spain had only the title of highness ; and before that of Henry VIII. the kings of England were only addressed under the titles of grace and highness. Under the Roman republic, the title majesty (*majestas*) belonged to the whole body of the people, and to the principal magistrates : so that to diminish or wound the majesty of the commonwealth was, to be wanting in respect to the state or to its ministers. But, the power afterwards passing into the hands of a single person, the appellation of majesty was transferred to the emperor and the imperial family. Pliny compliments Trajan on his being contented with the title of greatness ; and speaks very invidiously of those who affected that of majesty.

MAIGNAN (Emanuel), a religious minim, and one of the greatest philosophers of his age, was born of an ancient and noble family at Thoulouse in 1601. Like the famous Pascal, he became a mathematician without a teacher ; and filled the professor's chair at Rome in 1636, where, at the expense of cardinal Spada, he published his book *De Perspectiva Horaria*. He returned to Thoulouse in 1650, and was created provincial : and the king, who in 1660 often entertained himself with the machines and curiosities in his cell, made him offers through cardinal Mazarine, to induce him to fix his residence in Paris ; but he preferred his cloister. He pub-

lished *A Course of Philosophy*, 4 vols. 8vo., at Thoulouse ; to the second edition of which he added two treatises, one against the vortices of Descartes ; and the other on the speaking trumpet invented by Sir Samuel Morland. He is said to have studied even in his sleep, 'his very dreams being employed in theorems, the demonstrations of which would awaken him with joy !' He died in 1676.

MAHIDPORE, a town of Hindostan, in the province of Malwah, situated on the banks of the Soprah. In the vicinity was fought on the 21st of December 1817 a severe battle between the troops of Holkar and the British, in which the former was defeated with the loss of all his artillery. It is twenty miles north of the city of Oojain, the capital of Scindia.

MAIL INDUCTION, an ancient custom for the priest and people of country villages to go in procession to some adjoining wood on a May day morning ; and return in a kind of triumph, with a May pole, boughs, flowers, garlands, and other tokens of the spring. This May game, or rejoicing at the coming of the spring, was long observed, and is so still in some parts of England ; but bishop Grosthead thought there was so much 'heathen vanity' in it, that it was condemned and prohibited within the diocese of Lincoln.

MAIL, *n. s. & v. a.* Fr. *maille* ; Ital. *maglia* ; Belg. *maelis* ; Span. *malla*. Skinner derives our word from the Ital. *malle*, the mesh of a net : but the Goth. *mal* (Swed. *malju*) a link or division, is more probably suggested by Mr. Thomson. A coat of armour ; to cover with armour ; or as in defence.

I am thy married wife,
And thou a prince, protector of this land ;
Methinks I should not thus be led along,
Mailed up in shame, with papers on my back.

Shakspeare.

The mailed Mars shall on his altar sit
Up to the ears in blood. *Id. Henry IV*
Some shirts of mail, some coats of plate put on,
Some donned a curace, some a corslet bright.

Fairfax.

Being advised to wear a privy coat, the duke gave this answer, 'That against any popular fury, a shirt of mail would be but a silly defence.'

Wotton.

Some wore a coat-armour, imitating scale,
And next their skin were stubborn shirts of mail ;

Some wore a breast-plate. *Dryden's Knight's Tale.*

We strip the lobster of his scarlet mail. *Gay.*

At full my huge Leviathan shall rise,
Boast all his strength, and spread his wondrous size :
Who great in arms, e'er stripped his shining mail,
Or crowned his triumph with a single scale.

Young.

Then let them wield the thunder,
Fell is their dint who're mailed in despair.
Let mortal might sever the grasp of Bertram.

Maturin.

MAIL, *n. s.* } Fr. *male*, *mallette*. Or pro-
MAIL-COACH. } bably from the use of mail
armour as a close covering. A bag or portman-
teau ; a postman's bundle or bag ; the collection
of letters belonging to a postman, or despatched
from the post-office : mail-coach, the modern
and most excellent invention for transporting
them.

This goth aright ; unbockled is the male.
Chaucer. Cant. Tales.

But, sires, o word forgate I in my 'ale;
I have reliques and pardon in my *male*
As faire as any man in Englelond,
Which were me yeven by the pope's hond. *Id.*

The same prince erected a letter-office for England and Scotland, under the direction of the same Thomas Witherings, and settled certain rules of postage: but this extended only to a few of the principal roads, the times of carriage were uncertain, and the post-masters on each road were required to furnish the mail with horses at the rate of 2*d.* a mile.

Dr. A. Rees.

Mr. Palmer's modern invention of *mail-coaches* has been found highly convenient and useful, not only for the safe and expeditious conveyance of letters, but also of passengers. Those who have travelled in these vehicles need not be informed of their rapid motion. *Id.*

MAIL, or MAILL, on ship-board, a square machine composed of a number of rings interwoven net-wise, and used for rubbing off the loose hemp which remains on white cordage after it is made.

MAIL, or MAILLE, in old English writers, a small kind of money. Silver halfpence were likewise termed mailles, 9 Henry V. By indenture in the mint a pound weight of old sterling silver was to be coined into 360 sterlings or pennies, or 720 mails or half-pennies, or 1440 farthings. Hence the word mail was derived, which is still used in Scotch law for an annual rent.

MAIL, or MALL, also signifies a round ring of iron; whence the play of pall-mall, from palla, a ball, and maille, the round ring through which it is to pass.

MAIL COACHES. See COACH.

MAIL, COAT OF. It is called also an habergeon. Anciently they also wore shirts of mail under the waistcoat, to serve as a defence against swords and poniards. They wore also gloves of mail. See ARMOUR.

MAILAH, a river of the Bled-el-Jereede, which rises to the south of Algiers, and falls into the desert plain called the Shott.

MAILCOTTA, a town of the Mysore, Hindostan, situated on a hill which commands a view of the extensive valley watered by the Cavery. It is a celebrated place of Hindoo worship, and possesses a large temple surrounded by a colonade containing a large reservoir, on the banks of which are numerous buildings for the reception of pilgrims. The idols of this temple are covered with jewels; and such is the veneration in which it is held, that Tippoo Sultan would not venture to plunder it. In the vicinity the Mahrattas gained a complete victory over Hyder Aly in the year 1772; and it was here that the Mahratta chiefs joined lord Cornwallis in 1791. The town consists of about 400 respectable houses occupied by Brahmins. Long. 76° 52' E., lat. 12° 38' N.

MAILLA (Joseph-Anne-Marie de Moyriac de), a learned Jesuit, born in the castle of Maissac in Bugey, 1670, and appointed a missionary to China, whither he went in 1703. At the age of twenty-eight he had acquired considerable skill in the characters, rits, sciences, mythology, and ancient books of the Chinese, and was greatly esteemed by the emperor Kam-Hi, who died in 1722. He and other mission-

aries were employed by that prince to draw a chart of China and Chinese Tartary, which was engraved in France in 1732. He likewise drew charts of some of the Chinese provinces; with which the emperor was so pleased, that he settled the author at his court. The annals of China were also translated into French by Mailla, and his MS. was transmitted to France in 1737. This work was published in 12 vols. 4to., under the inspection of M. Grosier, and is the first complete history of that extensive empire. F. Mailla, after having resided forty-five years in China, died at Pekin on the 28th of June 1748, in the seventy-ninth year of his age. Kien Long, the emperor, paid the expenses of his funeral.

MAILLET (Benedict de), descended from a noble family in Lorraine, was born in 1659, and appointed in 1692 consul-general for Egypt. He fulfilled this office for sixteen years with great ability, supported the king's authority against the janizaries, and greatly extended the trade of France into that part of Africa. As a recompense for his services, Louis XIV. bestowed upon him the consulship of Leghorn. Being appointed in 1715 to visit the sea-ports in the Levant, and on the coast of Barbary, he was so successful, that he was permitted to retire with a considerable pension. He settled at Marseilles; where he died in 1738, in the seventy-ninth year of his age. He was a man of a lively imagination, gentle manners, and the strictest probity. He paid particular attention to natural history, and was anxious to investigate the origin of our globe. On this important subject he left some curious observations, which have been published in 8vo. under the title of Telliamed. An Indian philosopher is introduced as explaining to a French missionary his opinion concerning the nature of the globe, and the origin of mankind. His great object is to prove that all the strata of which this globe is composed, even to the tops of the highest mountains, arose originally from the bosom of the waters. He dedicated his book to the illustrious Cyrano de Bergerac, author of Travels to the Sun and Moon. A Description of Egypt was collected from his memoirs by Mascrier in 1743, 4to., or in 2 vols. 12mo.

MAIM, *n. s. & v. a.* Goth. *mainan*; Ital. *maidham*; Old Fr. *maimis*, to mutilate. A mutilation or defect; privation of some essential part; injury: to maim, to inflict such injury.

The multitude wondered when they saw the dumb to speak, the *maimed* to be whole, and the lame to walk; and they glorified God. *Matthew xv. 31.*

Surely there is more cause to fear, lest the want thereof be a *maim*, than the use a blemish.

Hooker.

Humphry, duke of Glo'ster, scarce himself,
That bears so shrewd a *maim*; two pulls at once;
A lady banish't, and a limb lopt off!

Shakespeare.

You wrought to be legate; by which power
You *maimed* the jurisdiction of all bishops. *Id.*

Not so deep a *maim*,
As to be cast forth in the common air
Have I deserved. *Id. Richard II.*

A noble author esteems it to be a *maim* in history, that the acts of parliament should not be recited.

Hayward.

MAIM, MAIHEM, or MAYHEM, in law, a wound by which a person loses the use of a member that might have been a defence to him; as when a bone is broken, a foot, hand, or other member cut off, or an eye put out; though the cutting off an ear or nose, or breaking the hinder teeth, was formerly held to be no maim. A maim by castration was anciently punished with death, and other maims with loss of member for member; but afterwards they were only punished by fine and imprisonment. It is now enacted, by the statute 22 and 23 Car. II., that if any person, from malice aforethought, shall disable any limb or member of any of the king's subjects, with an intent to disfigure him, the offender, with his aiders and abettors, shall be guilty of felony without benefit of clergy, but shall not corrupt the blood, or occasion forfeiture of lands, &c. By stat. 5. Henry IV. c. 5, to remedy a mischief which then prevailed, of beating, wounding, or robbing a man, and then cutting out his tongue, or putting out his eyes, to prevent him from being an evidence against the offenders, this offence is declared to be felony, if done of malice prepense; that is, as Coke explains it, voluntarily, and of set purpose, though done upon a sudden occasion. Next in order of time is stat. 27 Henry VIII. c. 6, which directs that if a man shall maliciously and unlawfully cut off the ear of any of the king's subjects, he shall not only forfeit treble damages to the party grieved, to be recovered by action of trespass at common law, as a civil satisfaction; but also £10 by way of fine to the king, which was his criminal amercement. The last statute, but by far the most severe and effectual of all, is stat. 22 and 23 Car. II. c. 1, called the Coventry Act; being occasioned by an assault on Sir John Coventry in the street, and slitting his nose, in revenge (as was supposed) for some obnoxious words uttered by him in parliament. By this statute it is enacted, that if any person shall, of malice aforethought, and by lying in wait, unlawfully cut cut or disable the tongue, put out an eye, slit the nose, cut off a nose or lip, or cut off or disable any limb or member of any other person, with intent to maim and disfigure him, such person, his counsellors, aiders, and abettors, shall be guilty of felony, without benefit of clergy; though no attainer of such felony shall corrupt the blood, or forfeit the dower of the wife, or lands or goods of the offender.

If a man attack another, of malice aforethought, in order to murder him, with a bill, or any such like instrument, which cannot but endanger the maiming him, and in such attack happen not to kill, but only to maim him, he may be indicted of felony on this statute; and it shall be left to the jury, on the evidence, whether there was a design to murder by maiming, and consequently a malicious intent to maim as well as kill, in which case the offence is within the statute.

In a case where a gentleman had apprehended a pickpocket, an accomplice followed and gave the gentleman a wound across the nose with a knife; this was held to be a slitting of the nose, and a maiming within the statute. It has been determined, that if a man deliberately

watches an opportunity, and carries his intention into execution, he may be said to lie in wait; but where a person went up to a man stealing turnips, who immediately cut him in the face, this was thought not to be a lying in wait within the statute. A wound or incision in the throat has been held not to be a maiming.

MAIMBOURG (Lewis), a celebrated French Jesuit, born in 1610. He joined the Jesuits in 1626; and acquired great reputation both as a teacher and a historian. He published *Histories of Arianism; of the Iconoclastes; of Calvinism; of Lutheranism; and of the Crusades*. The Jansenists criticised the first two of these, and the third was violently opposed; but he made no reply. In 1682 he was, by order of pope Innocent XI., expelled the Society of Jesuits, for his zeal in defending the liberty of the Gallican church against the Ultramontanes, but Louis XIV. made him amends by a large pension. He retired into the abbey of St. Victor, where he died in 1686.

MAIMONIDES (Moses), or Moses the son of Maimon, a celebrated rabbi, called by the Jews the eagle of the doctors, was born of an illustrious family at Cordova in Spain, in 1131. He is also called Moses Aegyptius, because he settled in Egypt, where he spent his life as physician to the sultan. He also opened a school, which was soon filled with pupils from Alexandria, Damascus, &c., who spread his fame over all the world. He was no less eminent in philosophy, mathematics, and divinity, than in medicine. His reputation was so great that he was applied to for advice and counsel by persons of the very first rank. Among others, the rabbi Aben Tybbon proposed to pay him a visit, that they might discuss some important subjects at length in conversation. To which Maimonides replied, that nothing would afford him greater pleasure than such an interview: nevertheless his own time was so fully occupied that he could scarcely promise him his company for a single hour, either in the day or at night: 'I live,' said he, 'at the distance of nearly two sabbath-days' journey from Al-Cairo, where the king resides. On him the duties of my appointment require a very regular attendance. I generally visit him every morning; but when either himself, or any of his children, or of his concubines, are sick, I am not allowed to stir from the palace, so that I very often spend the whole day at court: if I find nothing amiss at court, I return home towards noon, but when arrived at my house, almost famished for want of food, I find all the approaches to it crowded with Gentiles and Jews, men of all ranks, who have been impatiently waiting my return. No sooner have I alighted from my horse, and washed my hands, than I humbly request the indulgence of the multitude till I have appeased my craving appetite. As soon as I have dined, I examine the cases of my patients, and prescribe for them. This employment commonly lasts till night, when I am so overcome with the fatigue of hearing, speaking, and prescribing, that I can scarcely speak any longer, or even keep myself awake.' Maimonides died at the age of seventy, in the 1204th year of the Christian era, and was

interred, with the highest funeral honors, in Upper Galilee. For three whole years did the people at large bewail his death : they called the year in which it took place, lumentum lamentabile; and in speaking of him, they used to say that, from the time of Moses the prophet, no one approached so near to him in wisdom and sound learning as Moses the son of Maimon. Notwithstanding his avocations as a physician, he devoted much of his time to the composition of learned works, a few of which may be mentioned; the first he produced was his *Pirush Hemishnah*, or a commentary on the *Mishna*, which he began in Spain, when he was in the twenty-third year of his age, and finished in Egypt when he was about thirty. It was written in the Arabic language, and translated into Hebrew by rabbi Aben Tybbon. The best edition of this work is published with the *Mishna*, at Amsterdam, in 1698, in 16 vols. folio. His next work is entitled *Jad Chazekeh*, or *Strong Hand*, which is also named *Mishna Hithora*, or the *Reception of the Law* : it consists of a compendium of the *Talmud*, and presents a complete code of Jewish, civil, and canon law, with a commentary. The best edition is that of Amsterdam, in 1702, in 4 vols. folio. The principal work of this great man is entitled *More Nevochim*, or *Guide to the Perplexed*, which is partly critical, partly philosophical, and partly theological; its design being to illustrate and explain the meaning of the Scriptures. It was translated from the Arabic into Hebrew by rabbi Aben Tybbon in the year 1551, and published at Venice; Buxtorf the younger gave an excellent version of it in the Latin tongue, which was published at Basil in 1629. Another important work of Maimonides is his *Sepher Hamitzoth*, *Book of Commandments*, containing an exposition of the Mosaic law. The titles of his other works may be seen in *Wolfii Biblioth. Hebr.*

MAIMON, Solomon, a distinguished Jewish philosopher, born in Lithuania, 1753, was the son of a poor rabbi, who directed his studies to the *Talmud*. After having lived in extreme poverty, his thirst for knowledge carried him to Germany, where he became known to Mendelssohn, in Berlin, and obtained assistance from him. He pursued his studies, particularly in philosophy, with great zeal, turned his attention some time to pharmacy, travelled to Hamburg, Amsterdam, Breslau, returned to Berlin, and died in Silesia, in 1800. He wrote *Memoirs of his own Life* (Berlin, 1792—93, 2 vols.). *Maimoniana*, illustrative of his character, were published by S. J. Wolff (Berlin, 1813). He was the author of *Essays on the Transcendental Philosophy* (Berlin, 1790); *Essay towards a New Logic*, with letters to *Aenesidemus* (Berlin, 1794), in which he attempts to correct and define more accurately Kant's transcendental logic; a work *On the Categories of Aristotle* (1794); and *Critical Inquiries into the Human Mind* (Leipsic, 1797). In these writings he develops the doctrines of the critical philosophy with great ingenuity.

MAIN, *adj. & n. s.* } Old Fr. *magne*, of Lat.
MAIN'LAND, *n. s.* } *magnus*, great. There is

MAIN'LY, *adv.*

MAIN'MAST, *n. s.*

MAIN'SAIL,

MAIN'SHEET,

MAIN'TOP,

MAIN'YARD.

also a Goth. *megn*, *magn*; Saxon *inegne*; Teut. *megin*. Great; huge; mighty; chief; principal; leading; gross; important : as a substantive, the bulk; sum total; whole; greatest part; power; vigilance; the ocean; great and open sea : mainland, continent; a large expanse of land : mainly, follows the various senses of main : mainmast is the chief or middle mast of a ship : mainsail and mainsheet, the sail of that mast : maintop, its top; and mainyard, its yard.

They committed themselves unto the sea, and hoisted up the *mainsail* to the wind, and made towards shore. *Acts.*

He 'gan advance

With huge force, and importable *main*,
 And towards him with dreadful fury prance.

Spenser.

Ne was it island then,

But was all desolate, and of some thought

By sea to have been from the Celtic *mainland* brought. *Id.*

Think you question with a Jew :

You may as well go stand upon the beach,
 And bid the *main* flood bate his usual height.

Shakespeare.

We ourselves will follow

In the *main* battle, which on either side

Shall be well winged with our chiefest horse. *Id.*

They allowed the liturgy and government of the church of England as to the *main*.

King Charles.

That vessel, that seemed very small upon the *main*, seems a tall ship upon the Thames.

Bp. Hall.

These flaws, though mortals fear them,

As dangerous to the pillared frame of heaven,

Or to the earth's dark basis underneath,

Are to the *main* inconsiderable.

Milton's Paradise Lost.

I should be much for open war, O peers.

If what was urged,

Main reason to persuade immediate war,

Did not dissuade me most. *Id.*

That, which thou aright

Believest so *main* to our success, I bring.

Milton.

A brutish vice,

Inductive *mainly* to the sin of Eve. *Id.*

With might and *main*

He hasted to get up again. *Hudibras.*

They are *mainly* reducible to three. *More.*

Our *main* interest is to be as happy as we can, and as long as possible. *Tillotson.*

Nor tell me in a dying father's tone,

Be careful still of the *main* chance, my son ;

Put out the principal in trusty hands ;

Live on the use, and never dip thy lands.

Dryden.

He fell, and struggling in the *main*

Cried out for helping hands, but cried in vain. *Id.*

With might and *main* they chased the murderous fox,
 With brazen trumpets, and inflated box. *Id.*

Those whom Tyber's holy forests hide,

Or Circe's hills from the *mainland* divide. *Id.*

One dire shot,

Close by the board the prince's *mainmast* bore. *Id.*

All creatures look to the main chance, that is, food and propagation.

A Dutchman, upon breaking his leg by a fall from a mainmast, told the standers-by it was a mercy, it was not his neck.

Dictys called the maintop-mast bestride, And down the ropes with active vigour slide.

Say, why should the collected main
Itself within itself contain ?
Why to its caverns should it sometimes creep,
And with delightful silence sleep
On the loved bosom of its parent deep ?

The metallick matter, now found in the perpendicular intervals of the strata, was originally lodged in the bodies of those strata, being interspersed amongst the matter whereof the said strata mainly consist.

With sharp hooks they took hold of the tackling which held the mainyard to the mast ; then rowing out the tackling, and brought the mainyard by the side.

Is it only in the main design, but they have loved him in every episode.

Whilst they have busied themselves in various things, they have been wanting in the one main thing.

Have you beheld how, from the distant main,
The thronging waves roll on, a numerous train,
And foam, and bellow, till they reach the shore,
There burst their noisy pride, and are no more ?

But why o' death begin a tale ?
Just now we're living sound and hale,
Then top and maintop crowd the sail,
Heave care owre side !
And large, before enjoyment's gale,
Let's tak the tide.

MAIN, *n. s.*
MAIN'PERNOR, } Lat. *manus*, the
MAIN'PRISE, *n. s. & v. a.* } hand. A hand at
dice: mainprise is of French origin ; i. e. of *main* (Lat. *manus*) and *pris* (captus), taken ; and signifies the delivery of a man into friendly custody ; bail: the mainpernor is the receiver of a person into such custody.

Were it good,
To set the exact wealth of all our states
All at one cast ; to set so rich a main
In the nice hazard of one doubtful hour ?

He enforced the earl himself to fly, till twenty-six noblemen became mainpernors for his appearance at a certain day ; but, he making default, the utmost advantage was taken against his sureties.

Sir William Bretingham was executed for treason, though the earl of Desmond was left to mainprise.

Give its poor entertainer quarter ;
And, by discharge or mainprise, grant
Delivery from this base restraint.
To pass our tedious hours away,
We throw a merry main.

Writing is but just like dice,
And lucky *main* make people wise :
That jumbled words, if fortune throw 'em,
Shall, well as Dryden, form a poem.

MAIN is usually applied by seamen to whatever is principal, as opposed to whatever is condary. Thus the main land is used in contradistinction to an island or peninsula ; and the

main mast, the main wale, the main keel, and the main hatchway, are distinguished from the fore and mizen masts, the channel wales, the false keel, and the fore and aft hatchways, &c.

MAINA, a mountainous district of the Morea, Greece, comprising the south-eastern part of the ancient province of Laconia, but inhabited by a brave and very superior race of men. See an ample account of them in our article GREECE, vol. X. p. 637. It is the least fertile part of the peninsula.

MAINE, DISTRICT OF, forming a part of the state of Massachusetts, North America, is bounded north-west and north by Lower Canada, east by New Brunswick, south-east and south by the Atlantic, and west by New Hampshire. Its length on the northern frontier is 280 miles, on the eastern 210 ; greatest length from north to south 225, and greatest breadth from east to west 195 ; and it is estimated to contain 32,628 square miles.

The counties, number of towns, population, and chief towns, are exhibited in the following table :—

Counties.	Towns.	Population.	Chief Towns.
Cumberland	24	42,831	Portland
Hancock	21	22,560	Castine
Kennebeck	33	32,564	Augusta
Lincoln	33	42,992	Wiscasset
Oxford	28	17,630	Paris
Penobscot	20	7,471	Bangor
Somerset	26	12,910	{ Norridge- wock
Washington	10	7,870	Machias
York	22	41,877	{ York Alfred
Total	217	228,705	

Portland is the chief town. The other most considerable towns, excepting the county towns exhibited in the preceding table, are Bath, Hallowell, Kennebunk, Saco, Gardiner, Waterville, Belfast, Frankfort, Bucksport, Eastport, Brunswick, South Berwick, and Fryeburg. There are thirteen banks in this district.

There is a college at Brunswick, theological schools at Hampden and Waterville, and academies have been established at the following places, Augusta, Bath, Belfast, South Berwick, Bloomfield, Bluehill, Bridgeton, Bristol, China, Farmington, Fryeburg, Gorham, Hallowell, Hampden, Hebron, Limerick, Machias, Monmouth, Newcastle, North Yarmouth, Portland, Saco, Warren, and Wiscasset. Most of these academies have but small funds, and they are not all in operation. Good schools are supported in all those parts of the district that have been long settled.

The most numerous denominations of Christians in the district of Maine are, Congregationalists, who have 115 Churches ; and Baptists, who have 112 churches. The Friends have thirty-two meetings. There are some Methodists, and a few Episcopalians. The citizens of Maine are under the same government, and have the same rights and privileges as the citizens of Massachusetts Proper.

This district sends seven representatives to congress.

The principal rivers are the Penobscot, Kennebeck, Androscoggin, Saco, St. Croix, and St. Johns. The principal bays are Casco, Penobscot, Frenchman's, Englishman's, Machia's, and Passamaquoddy. The most noted lakes are Moosehead, Umbagog, Sebago, Schoondic, and several others farther in the interior.

Maine is rather an elevated country, having generally a diversified surface. A tract commencing on the west side of the district, east of the White Mountains in New Hampshire, and holding a north-east direction as far as the heads of the Aroostic, about 160 miles in length and sixty in its greatest breadth, is mountainous. Katahdin Mountain, in this range, is supposed to be the highest land between the Atlantic and the St. Lawrence. There is also a small mountainous tract in the northern extremity. The remainder of the district may be considered, generally, as a moderately hilly country.

The tract of country along the sea-coast, from ten to twenty miles wide, embraces all the varieties of sandy, gravelly, clayey, and loamy soils, frequently interspersed at short distances; seldom very rich; in many places tolerably fertile, but generally poor. Of this section Indian corn, rye, barley, grass, &c., are the principal productions. In the tract lying north of this, and extending fifty miles from the sea in the western, eighty in the central, and ninety in the eastern part, the same kinds of soil are found, but they are less frequently diversified, and generally more fertile. The surface rises into large swells of generally good soil, between which, on the margin of the streams, are frequently rich intervals, and in other places sandy or gravelly pine plains, or spruce and cedar swamps. Of this section the principal productions are grass, Indian corn, wheat, barley, rye, flax, &c.

The country beyond the limits above specified is but little settled. It exhibits great diversities in the appearance of its soil, growth of timber, and also in climate. The land on the Kennebeck, and between this river and the Penobscot, is accounted the best in the district. It is well adapted to the various purposes of agriculture, and, as a grazing country, it is one of the finest in New England.

An estimate of the quantity of grain produced annually, and of the average product per acre in six of the counties, is exhibited in the following table:

Counties.	Bushels of wheat raised annually.	Bushels of Indian corn.	Bushels of all other kinds, including pulse.	Average Bushels per acre.
York	12,350	122,307	26,860	14
Oxford	14,508	42,346	115,792	18
Cumherl.	16,993	93,887	29,127	15
Lincoln	20,188	82,564	24,426	18
Kenneb.	29,003	73,559	14,409	19
Somerset	9,828	21,842	7,734	18
			Average	17

Though the climate of Maine is subject to great extremes of heat and cold, yet the air in all parts of the country is pure and salubrious. The summers in most parts are favorable to the growth of all the vegetable productions of the northern states. In some parts, however, Indian corn, and some other plants of a more tender kind, are frequently injured, and sometimes destroyed, by frosts late in the spring and early in autumn. The cold of winter is severe, yet the serenity of the sky, and the invigorating influence of the atmosphere, during the same season, make amends, in some degree, for the severity of the weather. It is said that an inhabitant on Kennebeck River requires more clothing in winter to keep him comfortable in Boston than at home. Maine enjoys great facilities for commerce. The coast is indented with bays, abounding in excellent harbours. All the settled parts of the country lie near a market, and the produce of the farmer is readily exchanged for money, at a good price. When the attention of the inhabitants of this district shall be generally turned towards improvement in agriculture, and the resources of the country more fully developed, Maine will doubtless rise in the scale of comparison with other parts of New England. The principal article of export is lumber. Vast quantities of boards, shingles, clapboards, masts, spars, &c., are transported to the neighbouring states, to the West Indies, and to Europe. Much of the firewood consumed in Boston, and Salem, is brought from Maine. Dried fish and pickled salmon are considerable articles of export. Beef, pork, butter, pot and pearl ashes, and some grain, are also among the exports. Great quantities of lime are annually exported to Thomastown. Limestone and bog iron ore abound in many places.

In manufacturing articles of prime necessity Maine greatly exceeds her proportion, when compared with the average of the United States. The principal manufactures consist of cotton and woollen cloths, hats, shoes, boots, leather, iron, nails, distilled spirits, and cordage.

MAINE, one of the large rivers of Germany, has its course in the west of the empire, and is formed by the union of the Red and White Maine, which rise among the mountains of Franconia, and unite near Steinhaus. It now takes a meandering course through the Bavarian circles of the Upper and Lower Maine, flows by Frankfurt, and falls with a wide channel into the Rhine, opposite to Mentz. In its course it is joined by a number of rivers, the principal of which are the Franconian Saale, the Regnitz, the Tauber, and the Rodach. The Maine is navigable to Bamberg.

MAINE, LOWER, a province of the Bavarian states, comprising the territories in Franconia acquired by the treaty of Vienna in 1815 and the exchanges consequent on that treaty, is the grand duchy of Wurzburg, the principality of Fulda, and portions of the grand duchies of Hesse and Fulda. The whole form an extensive province adjoining Baden, Hesse-Cassel, and Hesse-Darmstadt, having an area of about 3000 square miles, and a population of 423,000: it is subdivided into districts, like the rest of the Bavarian states. The surface is hilly, except in the neigh-

bourhood of Wurzburg, one of the most beautiful and fertile parts of Germany. Among the hills, especially on the woody tract of the Spessart, it is much less productive. Wine is the principal product; but the country about Wurzburg produces corn for exportation. The only mineral found in abundance is salt: the manufactures are trifling. The chief forests are those on the hills of the Rhoen, the Steigerwald, and the Spessart. The chief religion is the Catholic, but there are many Lutherans, and some Anabaptists. The chief town is Wurzburg.

MAINE, UPPER, a circle or province of the Bavarian states, comprising the principalities of Bamberg, Upper Bayreuth, and the northern part of the Upper Palatinate. It adjoins Bohemia and Saxony, and has an area 3460 square miles, and 434,000 inhabitants. The chief town is Bayreuth, but a court of appeal sits at Bamberg. This province contains the extensive range called the Fichtelgebirge, and has all the characteristics of a hilly country, such as a keen but pure air, mines, and a light soil, more adapted to pasturage, the cultivation of hemp or flax, and the growth of timber, than to corn. But in the neighbourhood of Bamberg the soil is of great fertility. Manufactures of the articles produced in the province, viz. the metals, flax, and timber, are conducted with great activity. The last, in particular, affords the means of an active traffic. All religious sects are tolerated, and the two great parties are pretty equally divided, the Protestants being most numerous in Bayreuth, and the Catholics in the rest of the province.

MAINE ET LOIRE, a department of the west of France, comprising a portion of Anjou, and the western part of Touraine, and contiguous to the department of the Mayenne, the Sarthe, and the Indre and Loire. Its extent is nearly 4000 square miles: its population about 400,000. This territory is intersected by hills; the intervening tracts, with the exception of a few marshy districts, are fertile; the soil consisting of a mixture of black rich mould with a lighter sort of earth. The principal rivers are the Loire, the Mayenne, the Sarthe, the Authion, the Layon, and the Verzee. The products are corn, flax, hemp, fruit, and wine. Of vines, the quantity raised is not inconsiderable; but they are for the most part made into brandy. Coal is found to the annual amount of about 3000 tons, and considerable quantities of linen are manufactured. The department belongs to the twenty-second military division, and is divided into five arrondissements, viz. Angers (the capital), Segre, Bauge, Saumur, Beaupreau: these are subdivided into thirty-four cantons, and 385 communes.

MAINE AND TAUBER, one of the ten circles of Baden. It comprehends the north-east corner of the grand duchy, and a small tract on the Maine, at some distance from the rest. The population is, about 96,000. It is divided into eight bailiwicks: the chief town is Wertheim.

MAINLAND, or POMONA, the largest of the ORKNEY ISLANDS, which see.

MAINLAND OF SHETLAND, the largest of the SHETLAND ISLES, which see.

MAINOUR, MANOUR, or MEINOUR, from the

French *manier*, i. e. *manu tractare*, in a legal sense, denotes the thing that a thief taketh away, or stealeth; to be taken with the mainour is to be taken with the thing stolen about him: and again it was presented, that a thief was delivered to the sheriff or viscount, together with the mainour. If a man be indicted, that he feloniously stole the goods of another, where, in truth, they are his own goods, and the goods be brought into court as the mainour; and if it be demanded of him, what he saith to the goods, and he disclaim them: though he be acquitted of the felony, he shall lose the goods. If the defendant were taken with the mainour, and the mainour be carried to the court, they, in ancient times, would arraign him upon the mainour, without any appeal or indictment.—*Cowel. Blackst. Comment.*

MAINOTS; the inhabitants of the mountainous district of the Morea, called *Maina*, in the ancient Laconia. According to Leake, *Maina* is the Italian corruption for the Greek name *Mani*, and the proper name of the people is *Maniati*. They have been supposed to be the descendants of the ancient Spartans, but probably are composed of fugitives from all parts of Greece, who found safety in this remote corner, protected by the rocks and the sea. Their number is about 60,000, of whom 15,000 are capable of bearing arms. They are Christians of the Greek church, and never submitted to the Turkish yoke. They are hardy, brave, and skilful in the use of arms, and, with the barbarous practice of robbery, unite the virtue of hospitality. Their hatred against the Turks is implacable, and they were among the first to distinguish themselves in the Greek revolution. Previous to that period, *Maina* was divided into a number of districts, each under a *capitano*, over whom was a *beg*, or head chief, residing at Kitirai. Public affairs were discussed in assemblies called *synods*, in which every Mainot had a voice. (See *Greece*, and *Maina*.)

MAINPERNORS differ from bail in that a man's bail may imprison, or surrender him up before the appointed day of appearance; mainpernors can do neither, but are barely sureties for his appearance at the day: Bail are only sureties, answerable for the special matter for which they stipulate; mainpernors are bound to produce him to answer all charges whatever.

MAINPRISE, or MAINPRIZE. See IMPRISONMENT. The writ of mainprize, *manucapio*, is a writ directed to the sheriff, commanding him to take sureties for the prisoner's appearance, usually called mainpernors, and to set him at large. See LAW.

MAINTAIN, <i>v. a. & v. n.</i>	} Fr. <i>maintenir</i> ; Ital. <i>mantenere</i> ; Span. <i>mantener</i> ; Port. <i>manter</i> : all of Lat. <i>manu tenere</i> . To uphold; support, preserve; keep; keep up; defend; continue: maintainable is, defensible; justifiable: maintainer, he who supports; defends; preserves, maintenance is used by Chaucer for carriage; general behaviour: in modern times it follows the sense of the other derivatives.
MAINTAIN'ABLE, <i>adj.</i>	
MAINTAIN'ER, <i>n. s.</i>	
MAIN'TENANCE.	

Maintain talk with the duke, that my charity be not of him perceived. *Id. King Lear.*

I seek not to wax great by others waining;
Sufficeth, that I have *maintains* my state,
And sends the poor well pleased from my gate.

Shakspeare.

These possessions, being unlawfully gotten, could not be *maintained* by the just and honourable law of England.

Davies.

Being made lord lieutenant of Bulloine, the walls sore beaten and shaken, and scarce *maintainable*, he defended the place against the dauphin.

Hayward.

Lord Roberts was full of contradiction in his temper, and of parts so much superior to any in the company, that he could too well *maintain* and justify those contradictions.

Clarendon.

The ingredients being prescribed in their substance, *maintain* the blood in a gentle fermentation, reclude opipulations, and mundify it.

Harvey.

This place, these pledges of your love, *maintain*.

Dryden.

In tragedy and satire, I *maintain* against some of our modern critics, that this age and the last have excelled the ancients.

Id. Juvenal.

God values no man more or less, in placing him high or low, but every one as he *maintains* his post.

Grew's Cosmologia.

It is hard to *maintain* the truth, but much harder to be *maintained* by it. Could it ever yet feed, cloath, or defend its assertors?

South.

The *maintainers* and cherishers of a regular devotion, a true and decent piety.

Id. Sermons.

Here ten thousand images remain

Without confusion, and their rank *maintain*.

Blackmore.

Those of better fortune not making learning their *maintenance*, take degrees with little improvement.

Swift.

Nothing can be more unphilosophical than to be positive or dogmatical on any subject; and even if excessive scepticism could be *maintained*, it would not be more destructive to all just reasoning and inquiry.

Hume.

MAINTENANCE, in law, bears a near relation to Barretty; being an officious intermeddling in a suit that does not belong to one, by maintaining or assisting either party, with money or otherwise, to prosecute or defend it. This is an offence against public justice, as it keeps alive strife and contention, and perverts the remedial process of the law into an engine of oppression. By the Roman law, it was a species of the crimen falsi to enter into any confederacy, or do any act, to support another's lawsuit, by money, witnesses, or patronage. A man may lawfully, however, maintain the suit of his near kinsman, servant, or poor neighbour, out of charity and compassion. Otherwise the punishment by common law is fine and imprisonment; and by stat. 32 Hen. VIII. a forfeiture of £10.

MAINTENON (Madame de), was descended of an ancient family, and her proper name was Frances D' Aubigne. She was born in 1635, in a prison at Paris, where her father had been incarcerated; and her mother being unable to support her, she fell to the care of her father's sister, Madame Vilette. To escape this state of dependence, she married the celebrated abbé Scarron, who himself subsisted on a pension allowed him by the court. She lived with him many years: but when he died, in 1660, she found herself as

indigent as before her marriage. Her friends endeavoured to get her husband's pension continued to her, and presented so many petitions to the king, all beginning with 'the widow Scarron most humbly prays your majesty, &c.' that he was quite weary of them, and would exclaim, 'must I always be pestered with the widow Scarron?' At last, however, through the recommendation of Madame de Montespan, he settled a much larger pension on her, and afterwards appointed her to take care of the education of the young duke of Maine, his son by Madame de Montespan. The letters she wrote on this occasion attracted the attention of the king, and were the origin of her advancement. He bought her the lands of Maintenon, the only estate she ever had, and called her publicly Madame de Maintenon; he came to her apartment every day after dinner, before and after supper, and continued there till midnight: here he transacted business with his ministers, while she, engaged in reading or needle-work, never showed any desire to interfere with state affairs. About the end of 1685 it is said that Louis XIV. married her, he being then in his forty-eighth and she in her fiftieth year. She prevailed on him to found a religious community for the education of 300 young ladies of rank at St. Cyr, whither she frequently retired as a relief from that melancholy of which she complains so pathetically in one of her letters, and which few will suppose she should have been liable to in such an elevated situation. Louis, however, died before her in 1715; when she retired wholly to St. Cyr, and spent the rest of her days in acts of devotion. What is most surprising is, that Louis left no certain provision for her, only recommending her to the duke of Orleans. She would accept no more than a pension of 80,000 livres, which was punctually paid her till her death in 1719. A collection of her letters has been published, and translated into English; from which her character will be best known.

MAINTENON, a town of France, in the department of the Eure and Loire, on the Eure. Population 1600. Eleven miles north of Chartres.

MAJOR, *adj. & n. s.* } *Lat. major.* Greater, in any respect: as a *MAJORA'TION*, *n. s.* } substantive the field *MAJORDOMO*, } officer above the captain; a principal civil *MAJOR-GENERAL*, } officer in towns and cities; the first proposition of a syllogism: *majoration* is used by Bacon for enlargement; increase: *major domo* (Fr. *major dome*) is the principal officer of a domestic establishment: *major-general*, a general officer next in rank to a full general: *majority*, the greater number; the state of being greater: seniority of rank; full age or manhood; also, in an obsolete sense (*Lat. majores*), ancestry.

They bind none, no not though they be many, saving only when they are the *major* part of a general assembly, and then their voices, being more in number, must oversway their judgments who are fewer.

Hooker.

Fall Greek, fall fame, honour, or go or stay,
My *major* vow lies here.

Shakspeare.

Douglas, whose high deeds,
Whose hot incursions, and great name in arms,
Holds from all soldiers chief majority;
And military title capital.
Id. Henry IV.
There be five ways of majoration of sounds: enclosure
simple; enclosure with dilatation; communica-
tion; reflection concurrent; and approach to the
senory.
Bacon's Natural History.

During the infancy of Henry the IIIrd, the barons
were troubled in expelling the French: but this
prince was no sooner come to his majority, but the
barons waged a cruel war against him. *Davies.*

The true meridian is a major circle passing through
the poles of the world and the zenith of any place,
exactly dividing the east from the west. *Broune.*

Of evil parents an evil generation, a posterity not
unlike their majority; of mischievous progenitors, a
venomous and destructive progeny. *Id.*

The major of our author's argument is to be under-
stood of the material ingredients of bodies. *Boyle.*
It is not plurality of parts without majority of
parts that maketh the total greater.

Grew's Cosmologia.
Major-general Ravignan returned with the French
king's answer. *Tatler.*

It was highly probable the majority would be so
wise as to espouse that cause which was most agree-
able to the public weal, and by that means hinder a
sedition. *Addison.*

As in senates so in schools,
Majority of voices rules. *Prior.*

Decent executions keep the world in awe; for that
reason the majority of mankind ought to be hanged
every year. *Arbutnot.*

In common discourse we denominate persons and
things according to the major part of their character:
he is to be called a wise man who has but few follies.

Watts's Logic.
As to bribery and corruption, Sir, if it were pos-
sible to influence, by such base means, the majority
of the electors of Great Britain, to chuse such men
as would probably give up their liberties; if it were
possible to influence by such means a majority of the
members of this house to consent to the establish-
ment of arbitrary power, I would readily allow that
the calculations made by the gentlemen of the other
side were just, and their inference true.

Sir Robert Walpole.
Whether the majority of the members of any civil
community have a right to compel all the members
of it to pay towards the maintenance of a set of
teachers appointed by the majority, to preach a par-
ticular system of doctrines, is a question which might
admit a serious discussion. *Bp. Watson.*

MAJOR, in law, a person who is of age to
manage his own affairs. By the civil law a man
is not a major till the age of twenty-five years;
in England he is a major at twenty-one; in
Normandy at twenty, &c.

MAJOR, in logic, is understood of the first
proposition of a regular syllogism. It is called
major, because it has a more extensive sense than
the minor proposition, as containing the princi-
pal term.

MAJOR, in the art of war, is the title of several
officers of very different ranks and functions; as,
Drum-major, who has the same authority over his
drummers as the corporal has over his squad. He
instructs them in their different beats; is daily at
orders with the sergeants, to know the number of
drummers for duty; and marches at their head
when they beat in a body. In the day of battle,
or at exercise, he must be very attentive to the

orders given him, that he may regulate his beats
according to the movements ordered. *Fife-major*,
he that plays best on the fife. He has the same
authority over the fifers as the drum-major has
over the drummers. He teaches them their duty,
appoints them for guards, &c.

The MAJOR-GENERAL is the next officer to the
lieutenant-general. His chief business is to re-
ceive orders from the general, or in his absence
from the lieutenant-general of the day; which
he is to distribute to the brigade-majors, with
whom he is to regulate the guards, convoys, de-
tachments, &c. On him rests the whole fatigue
and detail of duty of the army roll. He is
charged with the encampment of the army;
places himself at the head of it when they march;
marks out the ground of the camp to the quarter-
master-general; and places the new guards for
the safety of the camp. When the army is to
march, he dictates to the field-officers the order
of the march, which he has received from the
general, and on other days gives them the parole.
In a fixed camp he is charged with the foraging,
with reconnoitring the ground for it, and posting
the escorts. In sieges, if there are two separate
attacks, the second belongs to him; but if there
is but one, he takes, either from the right or left
of the attack, that which the lieutenant-general
has not chosen. When the army is under arms
he assists the lieutenant-general, whose orders he
executes. If the army marches to an engagement
his post is at the head of the guards of the army,
until they are near enough to the enemy to rejoin
their different corps; after which he retires to his
own proper post: for the major-generals are dis-
posed in the order of battle as the lieutenant-
generals are; to whom, however, they are subor-
dinate for the command of their divisions. The
major-general has one aid-de-camp paid for
executing his orders.

MAJOR OF A REGIMENT OF FOOT, the next
officer to the lieutenant-colonel, generally pro-
moted from the eldest captain. He is to take
care that the regiment be well exercised, to see it
march in good order, and to rally it in case of
being broken in action: he is the only officer
among the infantry that is allowed to be on
horseback in time of action, that he may the
more readily execute the colonel's orders.

MAJOR OF A REGIMENT OF HORSE, as well as
of foot, ought to be a man of integrity, courage,
activity, experience, and address: he should keep
a detail of the regiment in every particular; he
should be skilled in horsemanship, and ever at-
tentive to his business; one of his principal
functions is, to keep an exact roster of the offi-
cers for duty: he should have a perfect know-
ledge in all the military evolutions, as he is
obliged by his post to instruct others, &c.

MAJOR OF ARTILLERY, is the next officer to
the lieutenant-colonel. His post is very labori-
ous, as the whole detail of the corps rests with
him; and therefore all the non-commissioned
officers are subordinate to him, as his title of
serjeant-major imports: in this quality they
must render him an exact account of every thing
which comes to their knowledge, either regarding
the duty or wants of the artillery and soldiers.
He should possess a perfect knowledge of the

power of artillery, together with all its evolutions. In the field he goes daily to receive orders from the brigade-major, and communicates them with the parole to his superiors, and then dictates them to the adjutant. He should be a very good mathematician, and be well acquainted with every thing belonging to the train of artillery.

MAJOR OF BRIGADE. See **BRIGADE-MAJOR.** He is appointed only in camp: he goes every day to head-quarters to receive orders from the adjutant-general: thence he goes to give the orders, at the place appointed, to the different majors or adjutants of the regiments which compose the brigade, and regulates with them the number of officers and men which each are to furnish for the duty of the army; taking care to keep an exact roster. In short, the major of brigade is charged with the particular detail in his own brigade, in much the same way as the adjutant-general is charged with the general detail of the duty of the army. He sends every morning to the adjutant-general an exact return, by battalion and company, of the men of his brigade missing at the retreat, or a report expressing that none are absent: he also mentions the officers absent with or without leave.

MAJOR OF ENGINEERS, commonly called sub-director, should be well skilled in military architecture, fortification, gunnery, and mining. He should know how to fortify in the field, to attack and defend all sorts of posts, and to conduct the works in a siege, &c. See **ENGINEER.**

MAJORCA, an island of the Mediterranean belonging to Spain, is nearly a square, the parallel sides lying north-east, and south-west, and W. N. W., and E. S. E.: the former are nearly straight, without indentation of consequence; but the latter are deeply indented by gulfs. The greatest length is fifty, and the medium breadth forty miles, containing a surface of 1440 square miles.

In general this island is mountainous and rocky, particularly on the north-west, where are the two conspicuous elevated mountains of Pugg-major and Galatz. On this side the shore is formed of precipices, furiously beaten by the sea, and has no place of shelter for a vessel, except the insignificant port of Soller. The island has no stream that deserves the name of river, but is sufficiently watered by the torrents from the mountains, many of which find their way to the sea. The climate is temperate, and in general healthy. The mountains of the north coast shelter the rest of the island from the cold north winds, which blow with great violence out of the gulf of Lyon, and also arrest the clouds, which condense into light rains and dews, that animate vegetation and moderate the heats of summer, during which season the atmosphere is also refreshed by sea breezes. The mountains, however, often create transient storms of great violence.

The mineral productions are coal (veins of which are found in several places, but none are worked), limestone, marbles, slate, and mill-stones. Near Campos is the only mineral spring in the island, which is sulphurous. The vegetables are similar to those on the opposite coast

of Spain. The quantity of wheat and barley produced is insufficient for the consumption of the island by 50,000 fanegas, to make up which it depends on Barbary, &c. This deficiency does not, however, proceed from the infertility of the soil, so much as from the imperfect state of cultivation, and the quantity of waste land.

The only wild quadrupeds are hares, rabbits, and a few foxes: the domestic animals, in 1805, were 2000 horses, 9000 asses and mules, 6000 head of horned cattle, 61,000 sheep, 34,000 goats, 25,000 hogs. The horses are weak and ill-shaped; the asses and mules strong and hardy; the horned cattle poor and weak; the sheep large and their wool fine, their milk as well as that of the goats is made into cheese; the hogs are large and fat, and their flesh is the most common animal food. Common fowls are plentiful, but geese and ducks very scarce.

The population of the island is estimated at 136,000 souls, of whom 2000 are priests and monks, and 1200 nuns. The manufactures are confined to some coarse linens and woollens, sail-cloth, and a little silk: the woollen girdles fabricated here are sent to Italy and Malta, the sail-cloth to Carthage for the navy.

The island has two cities, thirty villages, and twenty hamlets. The most conspicuous points of the coast are those which form the angles of the square, viz. Cape Pera the north-east, Cape Salinas the south-east, Cape Dragonera the south-west, and Cape Formentor the north-west. In the topographical description we shall commence at Cape Pera, and make the circuit of the island by the south. Manacor, two leagues south of this cape, is on a small cove, with good anchorage and fresh water, which issues from a grotto eighty yards from the beach. Cala Longa affords shelter to small vessels in bad weather: on it is the hamlet of Colomb. Port Pera can receive five or six moderate sized vessels, which may lie sheltered from all winds but south-east; on the left hand entering is a ruined castle. Cala Figuera, north of Cape Salinas, is only fit for long boats. Campos west of Cape Salinas. The Gulf of Palma is four leagues deep, with good bottom all over it, but exposed to south-west winds, which throw in a great swell, prolonging its west shore. The first place is Fort St. Carlos on a point, to which succeeds Port au Pins, a cove protected by its fort on its north point, in which frigates may anchor close to the shore, tolerably sheltered from all winds in ten fathoms. Here is also a haven for vessels of twelve feet, the entrance of which may be closed by a chain. Next to Port au Pins is Belw Castle, of considerable size, on a hill, and with a garrison in war of 150 men. Attached to it, on the north, is a tower, which serves as a state prison. The lazaret, between this castle and Palma, is built on the side of a hill, and is in very bad order.

Palma, the capital of the island, is at the head of the gulf, built semicircularly on a rising ground. It has 33,000 inhabitants, the streets in general narrow and ill-paved, and the houses large but plain. The chief buildings are the palace of the captain-general, a cathedral, five churches, ten convents of men and eleven of

women, the exchange, a town house, four hospitals, and a theatre. The town is surrounded by a wall fourteen palms thick, and flanked by thirteen bastions, several of which have redoubts, with two half moons and a horn-work. On the land side is a wide dry ditch, and towards the sea a narrow fausse bray. It has five gates towards the land, and three from the sea. Its haven is only fit for small vessels, who make fast alongside a narrow mole, 500 yards long, on the extremity of which is a battery. One of the most considerable streams of the island, called la Riera, runs past the walls of the city; it is only a mountain torrent, which nearly dries in summer, but in winter is often much swollen, and does considerable damage. Palma is also the seat of government of the isles Baleares and Pityuses, which is composed of a captain-general for the military, and a royal audience of eight persons for civil affairs: these authorities are independent of each other, but are both immediately accountable to the supreme council of Castile. Palma has a society for the encouragement of agriculture, manufactures, &c., and two printing presses; from which, however, there issues only government orders and advertisements of sales and local news.

Port Pásquet, west of Cape Figuera, and the west point of the gulf of Palma, has good anchorage in three to six fathoms, but is exposed to the south-west. Off its south-east point are two islets, which shelter it in that direction. Andraceio, or Andraig, is a well built town of 4000 inhabitants: near it is a cove, two miles deep, and a musket shot broad, which serves as its port, but admits only small craft. Friou, south of Cape Dragonera, is an open road. Banalbufar, north-east of Cape Dragonera, is a town of 5000 inhabitants, on the summit of a mountain. Soller Cove, nearly in the middle of the north-west side of the island, is at the extremity of a beautiful valley, bounded by barren hills: its entrance is difficult, and is protected by a battery of four guns: it is only visited by small craft, to load oranges, which the valley produces in abundance and which are shipped from the village of St. Catharine. Polenza Bay (Portus Minor), between Cape Formentor on the west and Cape Pinar on the east, has also good anchorage all over it, from twenty-seven fathoms at the entrance to three near its head. It has a land-locked cove, in which one ship may anchor in four fathoms, under a tower with some cannon; south of which is a good watering place. The open town of Polenza is two miles from the shore, at the head of the bay, and behind a hill: it has 6000 inhabitants. Alcuida Bay (Portus Major) is separated from Polenza Bay by a peninsula, whose north point is Cape Pinar, and the south Cape Minorca, or Alcuida. Cape Ferroul is the east point of the bay, within which is good anchorage for large ships. About thirty vessels of easy draft may lay perfectly sheltered at the head of the bay, near a small island, within which, on the main land, 200 yards from the shore, is a hole in a rock, with fresh water.

The city of Alcuida, the second of the island, is on the peninsula that separates the two bays, and situated on an eminence, two miles from the

shore of Alcuida Bay. Its population is at present but 800, being deserted in consequence of its unhealthiness, from a stagnant lake in the vicinity: it is surrounded by old walls and a dry ditch, with two forts and a garrison of thirty men.

Dragonera Island is but a quarter of a mile distant from Cape Dragonera, the west point of the island; and in the middle of the passage is a ledge of rocks, level with the water, but with a deep channel on each side. Cabrera is three leagues south-west of Cape Salinas.

MAIPO, a large river of Chili, in the province of Rancagua, noted for the number of persons drowned in it. It runs with such force, that, at the time of its floods, no bridge can be found to resist its impetuosity. Its waters are also impregnated with salt, and on this account are not fit for drinking. It abounds in trout, and enters the Pacific Ocean in lat. 33° 43' 2" S.

MAIRAN (John-James D'Ortous de), an eminent French writer, descended of a noble family at Besiers, and born in that city in 1678. He was one of the most illustrious members of the Academy of Sciences, and of the French Academy. In 1641 he succeeded Fontenelle as secretary to the academy. This station he filled with the most distinguished success till 1744. The chief of his works are, 1. *Dissertation sur la Glace*, 1749, 12mo., since translated into German and Italian. 2. *Dissertation sur la Cause de la Lumiere des Phosphores*, 1717, 12mo. 3. *Traité Historique et Physique de l'Aurore Boreale*, 12mo. 1733; afterwards much enlarged in 4to. in 1754. 4. *Lettre au Pere Parennin, contenant Diverses Questions sur la Chine*, 12mo. 5. A great number of the papers in the *Memoirs of the Academy of Sciences*, of which he published some volumes. 7. *The Eloges of the Academicians of the Academy of Sciences*, who died in 1741, 1742, 1743, in 12mo., 1747. His reputation extended into foreign countries. He was a member of the Imperial Academy at Petersburg, of the Royal Academy of London, of the institution at Bologna, of the royal societies of Edinburgh and Upsal, &c. The chancellor, Daguesseau, appointed him president of the *Journal des Sçavans*; a station which he filled very much to the satisfaction of the public. He was ready at repartee. Being asked what an honest man was, 'an honest man, said he, is one whose blood is refreshed with the recital of a good action.' He died at Paris of a defluxion of the lungs, in 1771, aged ninety-three.

MAIRE, LA, STRAITS OF, a narrow channel or passage from the Atlantic to the Pacific, between Terra del Fuego and Staten Land, so called from the name of a navigator, who discovered it in the year 1616. It is about fifteen miles long, and as many broad. According to Cook, the entrance of the straits should not be attempted, but with a fair wind and moderate weather, and upon the very beginning of the tide of flood, which happens here at the full and change of the moon, about one or two o'clock: and it is best to keep as near to the Terra del Fuego shore as the winds will admit.

MAISTRE (Louis Isaac le), called also Sacy, was born at Paris in 1613. He was made priest

in 1648, and soon after chosen director of the religieuse of Port Royal des Champs. As these were accused of Jansenism, the Jesuits persecuted them; and in 1661 he was obliged to conceal himself; and in 1666 was committed to the Bastille. During his confinement he is said to have composed the book *Figures de la Bible*. To le Maistre's confinement the public are indebted for a French translation of the Bible, finished in 1668, the evening before the feast of All Saints; when he recovered his liberty, after an imprisonment of two years and a half. He was presented to the king and the minister; and, all the favor he asked from them was, that they would send several times a year to examine the state of the prisoners in the Bastille. He continued at Paris till 1675, when he retired to Port Royal, which place he was again obliged to leave in 1679. He then settled at Pomponne, where he died January 4th, 1684, aged seventy-one. His works are, 1. *La Traduction de la Bible*, with explanations of the spiritual and literal meaning from the fathers; chiefly by Du Fosse, Hure, and Tourneaux. This is one of the best French translations that have yet appeared, and the best edition is that of Paris in 32 vols. 8vo. 1682, &c. 2. *Une Traduction des Pseaumes selon l'Hebreu et la Vulgate*, in 12mo. 3. *Une Version des Homelies de St. Chrysostome sur St. Matthieu*, 3 vols. 8vo. 4. *La Traduction de l'Imitation de Jesus Christ* (sous le nom de Beuil, prieur de St. Val), Paris, 1663, 8vo. 5. *Celle de Phedre*, 12mo. (sous le nom de St. Aubin). 6. *De trois Comedies de Terence*, in 12mo. 7. *Des Lettres de Bongars* (sous le nom de Brianville). 8. *Du Poeme de St. Prosper sur les ingrates*, in 12mo. en vers et en prose. 9. *Les Enluminures de l'Almanach des Jesuites*, 1654, 12mo., and 1733. 10. *Heures de Port-Royal*, in 12mo. 11. *Lettres de Piété*, Paris, 1690, 2 vols. 8vo.

MAITEA, the native name of a small but populous island of the South Pacific Ocean, supposed to have been discovered by Quiros in 1606, who called it *Dezana*; Bougainville called it *Boudoir*; captain Wallis, who visited it in 1769, called it *Osnaburg*. It is in subjection to the sovereign of Otaheite, and belongs to the chief of Teiarraboo. It is situated to the east of that peninsula, at the distance of more than twenty leagues; and, being lofty, is always observed by ships which approach Otaheite from the eastward. It is not above three miles in circuit: the southern side descends gradually, and has a border of low land next the sea. Pearls are procured here in exchange for iron. To the eastward it is enclosed by a coral reef. Long. 148° 12' W., lat. 17° 53' S.

MAITLAND (Sir Richard), a Scottish poet and eminent public character, born in 1496. He was educated at St. Andrews, and went to France to study the laws. Upon his return, says Mackenzie, he became a favorite of James V., and was made an extraordinary lord of session in 1553. By a letter of James VI. it appears that 'Sir Richard had served his grandsire, goodsire, goodam, his mother, and himself, faithfully, in many public offices.' He became blind before 1561, or his sixty-fifth year; not-

withstanding which he was made a senator of the college of justice, by the title of lord Lethington, November 12th 1561; and on the 20th of December, 1562, one of the council and lord privy seal, which last office he held till 1567, when he resigned it in favor of John his second son. Sir Richard continued a lord of session during all the troublesome times of the regents, in the minority of James VI., till 1584, when he resigned: he died March 20th 1586.

MAITLAND (William), F. R. S., an eminent Scottish antiquarian, born in Brechin in 1693. He was originally brought up as a hair merchant, but gave up business and came to London, where he published an extensive history of this metropolis, in one volume folio, which was reprinted after his death, with additions, in two volumes. His other works were, *The History of Edinburgh*, in one volume folio; and a treatise on the *History and Antiquities of Scotland*, in one volume folio. A second volume of this work was afterwards published by Dr. Granger. Mr. Maitland travelled into some of the northern countries of Europe, and died at Montrose in 1757, unmarried.

MAITSHA, a district of Abyssinia, in the province of Gojam, consisting of the country on both sides of the Abyssinian Nile, previous to its falling into the lake of Dembea. It is flat and marshy, and has been abandoned by the Agows, its original possessors, to colonies of the Galla. It produces little or no corn, but depends entirely for subsistence upon a plant called ensete. The inhabitants rear large fine cattle, and some indifferent horses.

MAITTAILE (Michael), A. M., a learned writer, born in 1668. Dr. South, canon of Christ Church, made him a student of that house, where he took the degree of A. M. March 23d 1696. From 1695 till 1699 he was second master of Westminster school. In 1706 he published *Græcæ Linguae Dialecti*, in usum Scholæ Westmonasteriensis, 1706, 8vo.; reprinted at the Hague in 1738; and in 1712 the English Grammar, applied to and exemplified in the English Tongue, 8vo. In 1711 he published *Remarks on Mr. Whiston's Account of the Convocation's proceedings with relation to himself*, 8vo.; and *An Essay against Arianism, and some other Heresies; or a Reply to Mr. W. Whiston's Historical Preface*, &c., 8vo. In 1709 he gave the first specimen of his skill in typographical antiquities, by publishing *Stephanorum Historiæ Vitas Ipsorum ac Libros Complectens*, 8vo. This was followed, in 1717, by *Historia Typographorum aliquot Parisiensium, Vitas et Libros Complectens*, 8vo. In 1719 *Annales Typographici, ab artis inventæ origine, ad annum MD. 4to*. The second volume, continued to 1536, was published at the Hague in 1720; with an introductory letter of John Toland de *Prima Typographiæ Inventionē*; as was also the third, continued to 1556, and by an Appendix to 1664, in 1725. In 1733 was published at Amsterdam the fourth volume, continued to 1662. In 1741 the work was completed at London, by the publication of the fifth and last volume, with an index to the whole. These last four volumes were in two parts each. In the

intermediate years he was employed on various useful works. In 1713 he published, by subscription, *Opera et Fragmenta Veterum Poetarum*, in 2 vols. folio. In 1714 he published a Greek Testament, in 2 vols. The classics, which he published separately, with indexes, came out in the following order:—In 1713 *Christus Patiens*, Justin, Lucretius, Phædrus, Sallust, Terence. In 1715 Catullus, Tibullus, Propertius, C. Nepos, Florus, Horace, Juvenal, Ovid, Virgil. In 1717 Cæsar, Martial, Q. Curtius. In 1718, and 1725, Velleius Paterculus. In 1719 Lucan. In 1720 Bonefontii Carmina. In 1721 *Batrachomyomachia Græce ad Veterum Exemplarium fidem Recusa: Glossa Græca; var. lect. vers. Lat. &c. illustrata*, 8vo. In 1722, *Miscellanea Græcorum aliquot Scriptorum Carmina, cum vers. Lat. et Notis*, 4to. In 1725 and 1741, *Anacreon* in 4to. In 1724 he compiled, at the request of Dr. Freind, an index to the splendid folio edition of *Aræteus*, in 1723. In 1726 he published *Petri Petiti Medici Parisiensis in tres priores Arætei Cappadocis Libros Commentarii; nunc primum editi*, 4to.; a work found among the papers of Grævius. From 1728 to 1733 he published *Marmorum Arundelianorum, Seldenianorum, aliorumque Acad. Oxon. Donatarum, una cum Commentariis et Indice*, folio, with an Appendix. His *Epistola ad D. P. des Maizeaux*, in quâ Indicis in *Annales Typographicos Methodus explicatur*, &c., is printed in the *Present State of the Republic of Letters*, August 1733, p. 142. His life of R. Stephens in Latin, with a complete list of his works, is prefixed to the improved edition of R. Stephens's *Thesaurus*, 4 vols. folio, in 1734. In 1736 appeared *Antiquæ Inscriptiones duæ*, folio; being a commentary on two large copper tables discovered near Hæraclea in the bay of Tarentum. In 1739 he addressed to Anne, empress of Russia, a small Latin poem, entitled *Carmen Epinicium Augustissimæ Russorum Imperatrici Sacrum*. In 1741 he published anonymously *Plutarch's Apophthegmata*, 4to. His last publication was *Senilia, sive Poetica aliquot in Argumentis varii Generis Tentamina*, in 4to., 1742. He died in 1747, aged seventy-nine. His valuable library, which had been fifty years in collecting, was sold by auction in 1747 and 1748.

MAIZE, *n. s.* A native name for Indian wheat.

The whole *maize* plant has the appearance of a reed. This plant is propagated in England only as a curiosity, but in America it is the principal support of the inhabitants, and consequently propagated with great care. *Miller.*

Maize affords a very strong nourishment, but more viscous than wheat. *Arbutnot on Aliments.*

MAIZE, or Indian corn. See **ZEA**.

MAKE, *v. a., v. n. & n. s.* Sax. *macan*, *machian*; Teut. *machen*; Belg. *meken*, as Mr. Thomson suggests, from Goth. *meiga*, to have power or efficiency: To create; form; produce; compose; force; effect; establish; incur; gain; incline or tend to; amount to; reach; put or place; give;

regard. The following are idiomatic phrases derived from this important word:—‘To make away,’ which is, to transfer; ‘to make away with,’ to expend; ‘make account,’ or make account of; ‘to reckon, esteem, or regard; ‘make free with,’ to treat unceremoniously or rudely; ‘make good,’ maintain; fulfil; ‘make light of,’ consider lightly, or as of no consequence; ‘make much of,’ to treat as important or of consequence; cherish; ‘make of,’ to understand respecting; consider; ‘make over,’ to transfer; settle; ‘make out,’ clear; explain; prove; ‘make up,’ to gather together; compose; shape; also to reconcile; repair; compensate. As a neuter verb, to make signifies to operate; contribute; have effect; travel; tend: ‘to make away with,’ to destroy; ‘make for,’ advantage; favor; ‘make up for,’ to compensate; ‘make with,’ to concur: make, as a substantive, is form; nature; appearance; stature. Dr. Johnson well observes, ‘This is one of the words so frequently occurring, and used with so much latitude, that its whole extent is not easily comprehended, nor are its attenuated and fugitive meanings easily caught and restrained. The original sense, including either production or formation, may be traced through all the varieties of application.’

A *make-bate* is a breeder of quarrels: *make-peace*, a reconciler of them: *make-weight*, any small substance designed to make up a given weight.

And thei seyden to him whi the disciplis of Jon fasten ofte and *maken* prieris, also and of the Farieses, but thin eten and drynken? *Luk. v.*

Alle thingis weren *maad* by hym, and withouten him was *maad* nothing, that thing that was *maad*.

Wiclif. Jon.

Let us *make* man in our image. *Gen. i. 26.*

Joseph *made* ready his chariot, and went up to meet Israel. *Genesis.*

She *made* haste, and let down her pitcher.

Gen. xxiv. 46.

I have *made* thee a god to Pharaoh.

Erod. vii. 1.

He fashioned it with a graving tool, after he had *made* it a molten calf. *Erod. xxxii. 4.*

He shall *make* amends for the harm that he hath done. *Leviticus.*

Joshua and all Israel *made* as if they were beaten before them and fled. *Josh. viii. 15.*

Give unto Solomon a perfect heart to build the palace for the which I have *made* provision.

1 Chron. xxix. 19.

Wealth *maketh* many friends; but the poor is separated from his neighbour. *Prov. xix. 4.*

I sought for a man among them that should *make* up the hedge, and stand in the gap before me for the land. *Ezekiel.*

They *made* light of it, and went their ways.

Matth. xxii.

They all began to *make* excuse. *Luke xiv. 18.*

The man hath servid you of his conninges

And forthrid well your law in his *makings*.

Chaucer. Legende of Good Women.

You be indeed *makers* or marrers of all men's manners within the realm. *Ascham's Schoolmaster.*

He will not let slip any advantage to *make* away him whose just title, ennobled by courage and goodness, may one day shake the seat of a never-secure tyranny. *Sidney.*

The king, hearing of their adventure, suddenly falls to take pride in *making much* of them, extolling them with infinite praises. *Id.*

Love in her passions, like a right *makebate*, whis-
pered to both sides arguments of quarrel. *Id.*

Clarence was, by practice of evil persons about the king his brother, called thence away, and soon after, by sinister means, was clean *made away*.
Spenser on Ireland.

There lavish nature, in her best attire,
Pours forth sweet odours, and alluring sights ;
And art with her contending, doth aspire
T' excel the natural with *made* delights. *Spenser.*
Seeing they judge this to *make* nothing in the world
for them. *Hooker.*

Whatsoever, to *make up* the doctrine of man's
salvation, is added as in supply of the scripture's
insufficiency, we reject it. *Id.*

She may give so much credit to her own laws, as
to *make* their sentence weightier than any bare and
naked conceit to the contrary. *Id.*

Antiquity, custom, and consent, in the church of
God, *making* with that which law doth establish, are
themselves most sufficient reasons to uphold the same,
unless some notable publick inconvenience enforce the
contrary. *Id.*

My mother I slew at my very birth, and since
have *made away* two of her brothers, and haply to
make way for the purposes of others against myself.
Hayward.

Make on, upon the heads

Of men, struck down like piles, to reach the lives
Of those remain and stand.

Ben Jonson's Catiline.

The Venetians, provoked by the Turk with divers
injuries, both by sea and land, resolved, without
delay, to *make war* likewise upon him. *Knolles.*

The grand master, guarded with a company of
most valiant knights, drove them out again by force,
and *made good* the place. *Id.*

Xaycus was wonderfully beloved, and *made of*, by
the Turkish merchants, whose language he had
learned. *Id.*

One of my fellows had the speed of him ;
Who, almost dead for breath, had scarcely more
Than would *make up* his message. *Shakspeare.*
He's in for a commodity of brown pepper ; of
which he *made* five marks ready money. *Id.*

If I suspect without cause, why then *make sport*
at me ; then let me be your jest. *Id.*

This is the night,
That either *makes* me, or fordoes me quite. *Id.*
A hundred pound or two, to *make merry* withal. *Id.*

Some undeserved fault
I'll find about the *making* of the bed. *Id.*

He may have a likely guess,
How these were they that *made away* his brother. *Id.*

This letter doth *make good* the friar's words. *Id.*
The bird is dead

That we have *made* so much on !
Id. Cymbeline.

The reasons you alledge do more conduce
To the hot passion of distempered blood,
Than to *make up* a free determination
'Twixt right and wrong.

Id. Troilus and Cressida.

Is not the lady Constance in this troop ?
—I know she is not ; for this match *made up*,
Her presence would have interrupted much.

Shakspeare.

Oh me, lieutenant ! what villains have done this ?
—I think, that one of them is hereabouts,
And cannot *make away*. *Id.*

To be a *makepeace* shall become my age. *Id.*

You must *make* a great difference between Her-
cules's labours by land, and Jason's voyage by sea
for the golden fleece. *Bacon.*

Lye not erect but hollow, which is in the *making*
of the bed ; or with the legs gathered up, which is
the more wholesome. *Id.*

The wind came about, and settled in the west for
many days, so as we could *make* little or no way.

Id.

The king went to Latham, to *make merry* with his
mother and the earl. *Id. Henry VII.*

Trajan would say of the vain jealousy of princes
that seek to *make away* those that aspire to their
succession, that there was never king that did put
to death his successor. *Bacon.*

They *made* no account but that the navy should
be absolutely master of the seas.

Id. War with Spain.

Warily provide, that while we *make* forth to that
which is better, we meet not with that which is
worse. *Id. Essays.*

A wonderful erroneous observation that *maketh*
about, is commonly received contrary to experience.
Bacon.

None deny there is a God, but those for whom it
maketh that there were no God. *Id. Essays.*

A gentleman and his wife will ride to *make merry*
with his neighbour, and after a day those two go to
a third ; in which progress they increase like snow-
balls, till through their burthensome weight they
break. *Carew's Survey of Cornwall.*

Behold : to have *made* the least clod of nothing
is more above wonder than to multiply a world.

Bp. Hall.

It *makes* to this purpose, that the light conserving
stones in Italy must be set in the sun before they re-
tain light. *Digby.*

All the actions of his life were ripped up and
surveyed, and all malicious glosses *made* upon all he
had said, and all he had done. *Clarendon.*

He was the more inflamed with the desire of
battle with Waller, to *make even* all accounts. *Id.*

Remember'st thou

Thy *making*, while the *Maker* gave thee being ?
Milton.

I have *made way*
To some Philistian lords, with whom to treat. *Id.*

I was assured, that nothing was designed
Against thee but safe custody and hold ;
That *made* for me, I knew that liberty
Would draw thee forth to perilous enterprises. *Id.*

On Wednesday the general account is *made up*
and printed, and on Thursday published. *Crant.*

The Phenicians *made* claim to this man as theirs,
and attributed to him the invention of letters.

Hale.

Making any similitudes in order to worship is pro-
hibited. *Barrow.*

Widows, who have tried one lover,
Trust none again till th' have *made over*.

Hudibras.

I borrowed that celebrated name for an evidence to
my subject, that so what was wanting in my proof
might be *made up* in the example. *Glennville.*

Those mercurial spirits which were only lent the
earth to shew men their folly in admiring it, possess
delights of a nobler *make* and nature, which antedate
immortality. *Id.*

A pint of salt of tartar, exposed unto a moist air,
will *make* more liquor than the former measure will
contain. *Brown.*

Acosta recordeth, they that sail in the middle can
make no land of either side.

Browne's Vulgar Errours.

Give poets leave to make themselves away.

Roscommon.

The heaven, the air, the earth, and boundless sea,
Make but one temple for the Deity.

Waller.

Debtors,

When they never mean to pay,

To some friend make all away. *Id.*

When he comes to make good his confident undertaking, he is fain to say things that agree very little with one another.

Boyle.

A thing may make to my present purpose. *Id.*

We are to vindicate the just providence of God in the government of the world, and to endeavour, as well as we can, upon an imperfect view of things, to make out the beauty and harmony of all the seeming discords and irregularities of the divine administration.

Tillotson's Sermons.

The stone wall which divides China from Tartary is reckoned nine hundred miles long, running over rocks, and making way for rivers through mighty arches.

Temple.

The easy and the lazy make much of the gout; and yet, making much of themselves too, they take care to carry it presently to bed, and keep it warm.

Id.

I passed the summer here at Nimegnen, without the least remembrance of what had happened to me in the spring, till about the end of September, and then I began to feel a pain I knew not what to make of, in the same joint of my other foot.

Id.

Both combine

To make their greatness by the fall of man.

Dryden.

What hope, O Pantheus! whither can we run?
Where make a stand? and what may yet be done?

Id.

While merchants make long voyages by sea

To get estates, he cuts a shorter way. *Id.*

I bred you up to arms, raised you to power,

Permitted you to fight for this usurper;

All to make sure the vengeance of this day,

Which even this day has ruined. *Id.*

I've made the port already,

And laugh securely at the lazy storm. *Id.*

Now mark a little why Virgil is so much concerned to make this marriage; it was to make way for the divorce which he intended afterwards.

Id. Æneid.

Deep in a cave the sybil makes abode.

Dryden.

Each element his dread command obeys,

Who makes or ruins with a smile or frown. *Id.*

The loss was private that I made;

'Twas but myself I lost; I lost no legions.

Id.

I will neither plead my age nor sickness in excuse of the faults which I have made.

Id.

Gomez! what makest thou here with a whole brotherhood of city-bailiffs?

Id. Spanish Fryar.

I'll either die, or I'll make good the piece.

Dryden.

Makes she no more of me than of a slave? *Id.*

Make out the rest,—I am disordered so,

I know not farther what to say or do. *Id.*

The wise besimes make over their estates. *Id.*

The bull

His easier conquest proudly did forego;

And making at him with a furious bound,

From his bent forehead aimed a double wound.

Id.

Is our perception of so frail a make,

As every plot can undermine and shake? *Id.*

Upon the decease of a lion the beasts met to chuse a king: several put up, but one was not of make for a king; another wanted brains or strength.

L'Estrange.

Our desires carry the mind out to absent good, according to the necessity which we think there is of it, to the making or encrease of our happiness.

Locke.

In respect of actions within the reach of such a power in him, a man seems as free as it is possible for freedom to make him.

Id.

How will the farmer be able to make up his rent at quarter day?

Id.

They mow fern green, and, burning of them to ashes, make the ashes up into balls with a little water.

Mortimer.

Me lonely sitting, nor the glimmering light

Of makeweight candle, nor the joyous task

Of loving friend delights. *Phillips.*

A monstrous boar rusht forth; his baleful eyes

Shot glaring fire, and his stiff-pointed bristles

Rose high upon his back; at me he made,

Whetting his tusks.

Smith's Phædra and Hippolitus.

I desired he would let me see his book: he did so, smiling: I could not make any thing of it.

Tatler.

Zeal should be made up of the largest measures of spiritual love, desire, hope, hatred, grief, indignation.

Sprat.

Men of wit and parts, but of short thoughts and little meditation, distrust every thing for fiction that is not the dictate of sense, or made out immediately to their senses.

Burnet.

Egypt, mad with superstition grown,

Makes gods of monsters.

Tate's Juvenal.

He is to encounter an enemy made up of wiles and stratagems; an old serpent, a long experienced deceiver.

South.

Those who are wise in courts,

Make friendships with the ministers of state,

Nor seek the ruins of a wretched exile.

Rowe.

Old mouldering urns, racks, daggers, and distress

Make up the frightful horror of the place.

Garth.

These are the lineaments of flattery, which do together make up a face of most extreme deformity.

Government of the Tongue.

Make some request, and I,

Whate'er it be, with that request comply.

Addison.

How happy each of the sexes would be, if there was a window in the breast of every one that makes or receives love.

Id.

What multitude of infants have been made away by those who brought them into the world!

Id.

There is another statue in brass of Apollo, with a modern inscription on the pedestal, which I know not what to make of.

Id.

My waist is reduced to the depth of four inches by what I have already made over to my neck.

Id. Guardian.

Oh he was all made up of love and charms;

Whatever maid could wish, or man admire.

Addison.

The women of Greece were seized with an unaccountable melancholy, which disposed several of them to make away with themselves.

Id.

Several lies are produced in the loyal ward of Portsoken of so feeble a make, as not to bear carriage to the Royal Exchange.

Id. Freeholder.

Did I but purpose to embark with thee,

While gentle zephyrs play in prosperous gales;

But would forsake the ship, and make the shoar,

When the winds whistle, and the tempests roar.

Prior.

Age and youth cannot be *made over*: nothing but time can take away years, or give them. *Collier.*

He was to *make up* his accounts with his lord, and by an easy undiscoverable cheat he could provide against the impending distress. *Rogers's Sermons.*

In the passages from divines, most of the reasonings which *make out* both my propositions are already suggested. *Atterbury.*

There must needs be another state to *make up* the inequalities of this, and to solve all irregular appearances. *Id.*

Were it permitted, he should *make* the tour of the whole system of the sun. *Arbuthnot.*

If it is meant of the value of the purchase, it was very high; it being hardly possible to *make* so much of land, unless it was reckoned at a very low price. *Id.*

A catapodium is a medicine swallowed solid, and most commonly *made up* in pills. *Id. On Coins.*

It is the unanimous opinion of your friends, that you *make* as if you hanged yourself, and they will give it out that you are quite dead. *Arbuthnot.*

Thus wisely she *makes up* her time,

Mis-spent when youth was in its prime.

Glancville.

Antiquaries *make out* the most ancient medals from a letter with great difficulty to be discerned. *Felton.*

The second mercy *made over* to us by the second covenant, is the promise of pardon. *Hammond.*

The same who have *made free* with the greatest names in church and state, and exposed to the world the private misfortunes of families. *Dunciad.*

It may be with superior souls as with gigantick, which exceed the due proportion of parts, and, like the old heroes of that *make*, commit something near extravagance. *Pope.*

This the divine Cecilia found,
And to her *Maker's* praise confined the sound. *Id.*

I dare promise her boldly what few of her *makers* of visits and compliments dare to do. *Id. Letters.*

You conceive you have no more to do than, having found the principal word in a concordance, introduce as much of the verse as will serve your turn, though in reality it *makes* nothing for you. *Swift.*

Upon one side were huge pieces of iron cut into strange figures, which we know not what to *make of*. *Id.*

Moor, to whom that patent was *made over*, was forced to leave off coining. *Id.*

I dare engage to *make it out*, that they will have their full principal and interest at six per cent. *Id.*

The parties among us are *made up* on one side of moderate whigs, and on the other of presbyterians. *Id.*

Blinded he is by the love of himself to believe that the right is wrong, and wrong is right, when it *makes* for his own advantage. *Id.*

Outrageous party-writers are like a couple of *makebates*, who inflame small quarrels by a thousand stories. *Id.*

The child taught to believe any occurrence to be a good or evil omen, or any day of the week lucky, hath a wide inroad *made* upon the soundness of his understanding. *Watts.*

The power of reasoning was given us by our *Maker* to pursue truths. *Id. Logick.*

He is not that goose and ass that Valla would *make* him. *Baker.*

Nature no such hard task enjoins: she gave
A *make* to man directive of his thought;

A *make* set upright, pointing to the stars,
As who shall say, 'Read thy chief lesson there.'

Young.

MAKE, n. s. Sax. *maca*, *gemaca*. Companion; favorite. Obsolete.

And if so fall the chevetain be *taxe*
On eyther side or elles sleth his *make*,
No longer shall the tournaying ylast.

Chaucer. Cant. Tales.

The elf wherewith astonied,
Upstartd lightly from his looser *make*,
And his unsteady weapons 'gan in hand to take.

Faerie Queene.

Bid her therefore herself soon ready *make*,
To wait on love amongst his lovely *crow*;
Where every one that misseth then her *make*,
Shall be by him amearest with penance due.

Spenser.

For since the wise town,
Has let the sports down,
Of May games and morris,
The maids and their *makes*,
At dances and wakes,
Had their napkins and posies,
And the wipers for noses.

Ben Jonson's Owl.

MAKO, a market town and bishop's see of Hungary, in the palatinate of Csanad, on the river Marosch. The Greeks and Calvinists have churches here; and the population is estimated at 7000. It is nine miles west by north of Csanad.

MAKOOA, a people of Eastern Africa, described by the Portuguese as inhabiting the country behind Mozambique. They are very warlike and barbarous, but have gained a knowledge of musketry, which they use skilfully, as well as spears and the bow: they tattoo their skins, file their teeth, and have on the whole a most forbidding appearance.

MAKRI, a sea-port of Asia Minor, situated on a gulf of the same name. The harbour is excellent, and the gulf affords deep and safe navigation. At this place, travellers from Constantinople, and expresses sent by the Turkish government, embark for Egypt. Fire-wood is also sent to that country; and timber, tar, cattle, and salt, to Rhodes. There is therefore always a good deal of shipping here. Provisions are cheap, and easy to be procured. The air, however, is unhealthy; and a complete malaria prevails. When Sir Sidney Smith was there, in the *Tigre*, he had in one week 100 placed on the sick list. This unhealthiness appears to arise partly from the ruins with which its site is covered, and partly from the high mountains which, rising on all sides, place it as it were in the bottom of a pit. The most remarkable object in the town of Makri consists of the ruins of Telmessus, upon which it is built, and of which an immense theatre alone remains conspicuous. It was built on the side of a mountain, to whose shelving sides the structure is adapted. In front extended a noble terrace, to which a magnificent flight of steps conducted from the sea. The sides of the mountains appear also hewn into magnificent tombs; not only the chambers, but the columns in front, being cut out of the solid rock. The stones enclosing the place where the bodies are deposited have been so nicely joined, that it is now impossible to discover the place where the entrance had been. There are also large vaulted caves, in the corner

of which is a recess, whence it is supposed the ancient soothsayers uttered responses, which appeared supernatural to the credulous votaries who came to consult them.

No place was more renowned in antiquity than this for the art of divination. There is also a monument, consisting of huge masses of stone, placed together without cement, and bearing every appearance of having supported some enormous obelisk or pyramid. Dr. Clarke thinks this may not possibly have been the mausoleum of Artemisia. Nothing can exceed the gloomy grandeur of the aspect of this part of Asia Minor. The inhabitants are remarkably rude, lawless, and daring; which calls for peculiar precautions in the vessels which come here for water or provisions. 125 miles south-east of Smyrna. Long. $29^{\circ} 30' E.$, lat. $36^{\circ} 58' N.$

MALABAR, a maritime province of Hindostan, situated between 10° and 13° of N. lat. It is bounded on the north by the province of Canara, on the south by the rajah of Cochin's territories, to the east it has the chain of lofty mountains denominated the Western Ghauts, and on the west it is washed by the sea. That portion of this province which borders on the sea is a level and of a poor soil; but many of the hills and intervening valleys of the interior are extremely fertile. This country is intersected by a number of mountain streams which overflow their banks during the rainy season; but their channels are frequently dry, except as far as the tide reaches, and their courses generally short. The chief produce is timber, sandalwood, cocoa nuts, coir, and black pepper. The principal towns Calicut, Tellichery, and Cannanore. The villages are numerous, and neatly built of mud, washed with lime, and thatched with palmira leaves.

This was the first part of India visited by Europeans; Vasco de Gama having landed at Calicut in the month of May 1498. He found the country governed by different Hindoo princes; the principal of whom is called by the Portuguese the Zamorin rajah. Previously to this there seem to have been several colonies of oriental Christians, Jews, and Mahometans, established here, each of whom have since increased in number. The bulk of the inhabitants are, however, Hindoos of various castes; as the Nambourine Brahmins; the military tribe of Nairs, of which are the rajahs, and among whom exist the systems of polyandri, and the inheritance devolving to the children of the sister, no man knowing his own child. The inferior caste is the Parian or Pariar; condemned by all the rest, and being in great proportion slaves. There, however, exists a yet more wretched class, the Niadis, who are not permitted to enter towns or villages, but reside in the woods, and live by hunting and robbing.

The descendants of Europeans, particularly the Portuguese, are numerous; as also those of the Arabic Mussulmans, or their converts called Mapillas. About the year 1766, Malabar was subdued by Hyder Aly; during the war the rajah of Calicut committed suicide, and the other chiefs were compelled to abandon their territories, and take refuge in the mountains. In

the war between Tippoo Sultan and the British, in 1790, several of these chiefs joined our army; and, when Tippoo had been compelled to relinquish a large portion of his territories, the province of Malabar was placed under the government of Bombay; on which the different Nair chiefs were reinstated in their former possessions, but they failed in all their engagements as to the revenues, and their mode of government was found to be wretched in the extreme. They were in consequence deprived of authority, and allowed one-fifth of the revenues for their support. On their subsequent revolt, the province was transferred to the government of Madras, which have divided it into two collectorships; and since this arrangement the country has been much improved: in the year 1807 it yielded a revenue of nearly twenty-five lacs of rupees.

MALABAR CAPE, or Sandy Point, a strip of land projecting out from the south-east part of Cape Cod, in Massachusetts, about eight miles south by west. Long. $70^{\circ} 3' W.$, lat. $41^{\circ} 33' N.$

MALABAR POINT, a promontory on the island of Bombay, near which there is a celebrated Hindoo temple, the object of pilgrimage, and a rock containing a fissure, by passing through which the superstitious believe they are purified from sin. The neighbouring village is inhabited by Brahmins.

MALACCA, or MALAYA, a considerable country of India, beyond the Ganges, south-east of Siam, is 200 leagues long and forty in its greatest breadth. Its absolute limits are not, however, strictly defined; the narrow tract that separates the bay of Bengal from the gulf of Siam, called the isthmus of Kraw, is its connecting point in that country. The interior is occupied by mountains, covered with impenetrable forests, and apparently almost uninhabited; the highest summit is that named Mount Ophir, south-east of Malacca. These mountains contain tin mines, and give rise to numerous rivers, most of which are navigable by small vessels, and some of them for vessels of burden. The coasts seem to be divided into seven petty sovereignties, of which Queda, Pera, Salangore, are on the west; Johore at the east extremity; and Pahang, Tringano, and Patany on the east. The first place on the west coast is Bangri in 9° ; it has a considerable native trade, but is seldom visited by Europeans.

Queda, or Qualla Batrang, one of the chief trading places of the peninsula, is in $6^{\circ} N.$ Its river's mouth is crossed by a mud bank with twelve feet water at spring tides, but vessels of 300 tons can ascend it. The banks of the river are swampy, and covered with jungle towards its mouth. Seven miles up it is a brick fort and village, named Allestar, the residence of the rajah. It contains about 300 houses, inhabited by Chinese, Malays, and Chulias. Chinese are indeed found established in almost all the principal Malay towns. Its trade has greatly declined since the establishment of Prince of Wales's Island. Provisions, particularly bullocks and poultry, with fruit and vegetables, are abundant here.

Qualla Moorba, six leagues south of Queda, is a large, deep, and rapid river, with a great

sand-bank before it; it descends from mountains abounding in tin. Pry River succeeds, and has a Malay town at its entrance, which, together with a district eighteen miles up the river, and three miles in breadth, was ceded in 1800 by the rajah of Queda to the East India Company, and is dependent on Prince of Wales's Island.

MALACCA, the chief town of the peninsula, is situated on the small river Crysorant, which can only be entered by the Malay proas. The fort or citadel of St. Paul, built by the Portuguese, is on an elevation on the left bank of the river, and contains all the government buildings, and a garrison of 500 troops. The town on the opposite side of the river (which is crossed by a bridge of several arches) is surrounded by entrenchments, to protect it from the Malays: it contains about 100 Europeans, 250 half caste, 5000 Chinese, 6000 Malays, and 600 Chulias. The road is entirely open, and large ships are obliged to anchor three miles from the town, from the shoalness of the water closer in. The country a little way inland is hilly; and to the east of the town rises the lofty mountain of Ledang, also called Queen's Mountain, and Ophir. The land near the shore is low, and thickly covered with wood, which it might be supposed would render the town unhealthy; on the contrary, however, it is one of the most healthy places of India, in no part of which are there more instances of longevity. Malacca was formerly a great trading place for tin, but which is now carried to Prince of Wales's Island. It is, however, an excellent place for ships to touch at, provisions being in great abundance, and fruits in an unparalleled profusion and variety. Amongst them is the delicious mangustine, of which this seems to be the western limit.

Johore River is near the extremity of the Malay peninsula; it is of considerable size, with two channels in, formed by the large island of Singapore. The town where the rajah resides is twenty miles up the river, and is a considerable Malay native trading place, but seldom visited by Europeans.

Point Romania, Oojong Tanah of the Malays, is the south-east point of the peninsula, and is a low point with a hummock, named Mount Barbucet, west of it. Off it is a cluster of rocky islets, and on the west side of the point is Romania River, with but two or three feet at its narrow entrance at low water.

Point Romania is also the east limit of the strait of Singapore, which forms the communication between the strait of Malacca and the China Sea. This extremity of the peninsula is uninhabited and covered with wood, the retreat of wild elephants, buffaloes, deer, hogs, monkeys, peacocks, &c. The rivers are full of alligators and guanas, and the rocks covered with oysters. In the middle of the strait of Singapore is Pedro Branco, or the White Rock, named from its being whitened by the dung of sea birds. It is surrounded by sunken rocks.

Malacca has a partial dependence upon Siam. Formerly the Siamese monarchy had its supremacy owned by the whole peninsula; but, since it sunk under the power of the Burmans, all the southern part has shaken off the yoke. The

Malays are well known, and widely diffused throughout all the east. They are said, however, not to have been natives of this country, originally, but to have come from the district of Palembang in Sumatra, on the banks of the river Malaya, and thence to have founded the city of Malacca in 1252. The supreme internal power resides in a rajah, who assumes the title of sultan, and who has under him a number of dattoos or nobles, but the whole system is of a very precarious and particular character. The people are the terror of Asia as pirates. In the pursuit of plunder or conquest, they show themselves daring, vindictive, and insatiable; merciless to enemies and strangers, and capricious to their friends and associates. That which can be construed into an insult drives them to fury; and has often impelled them to deeds of frenzy, known by the name of running amok, peculiar to themselves. He who has resolved upon this, begins by taking a dose of opium, till he is half intoxicated; he then throws loose his long black hair, draws his kris, and rushes into the streets, crying 'kill, kill,' and in fact kills every one that encounters him in his career. But under the British government this practice has generally disappeared. Some writers indeed wholly attribute it to the oppressions of their former conquerors, and assert that the Malays possess higher sentiments of honor, greater fidelity to their word, and upon the whole a more estimable character than the natives of India. 'They are even mild and courteous in their domestic deportment, and, to masters who treat them well, make faithful and attached domestics. Piracy is the irregular habit which is most deeply rooted in their nature; to it their ideas attach no disgrace; on the contrary its successful prosecution is considered as glorious.'

Their language is distinguished for its smoothness and softness, and appears to have a basis of Sanscrit, with a tincture of Arabic. It has become, like the French in Europe, a sort of current dialect over all the sea coasts, and in all mercantile societies of the east.

Besides the Malays, who inhabit the coasts, the peninsula in its interior tracts, maintains another race, conceived to have been its original inhabitants, who seem to be a variety of the Papuas or oriental negroes. They have the woolly hair, jet black skin, thick lip, and flat nose, of the African, and are called by the Malays Samangs. Those established in the lower districts, plant a little rice, and exchange the resin, bees' wax, and honey of their forests for clothes and food. The Samangs of the mountains, on the contrary, are said to be complete savages, who have no fixed abodes. They subsist entirely by hunting and plunder. Malacca also contains colonies from several of the neighbouring countries and islands.

MALACHI, Heb. מַלְאכִי, i. e. my messenger, the last of the twelve minor prophets. He prophesied about 300 years before Christ, reproving the Jews for their wickedness after their return from Babylon, and condemning the priests for being careless in their ministrations at the same time encouraging the few who maintained their integrity. He distinctly prophesies of the Mes-

niah, as well as his forerunner, who should come in the spirit and power of Elijah.

MAL'ADY. *Fr. maladie.* A disease; dis-temper; sickness.

Better it is to be private
In sorrow's torments, than ty'd to the pomp of a
palace,

Nurse inward *maladies*, which have not scope to
be breathed out. *Sidney.*

Physicians first require, that the *malady* be known
thoroughly, afterwards teach how to cure and re-
dress it. *Spenser.*

Say, can you fast? your stomachs are too young:
And abstinence engenders *maladies*. *Shakspeare.*

Love's a *malady* without a cure;
Fierce love has pierced me with his fiery dart;
He fires within, and hisses at my heart.

Dryden.

An accidental violence of motion has removed
that *malady* that has baffled the skill of physicians.

South.

Unnumbered *maladies* his joints invade,
Lay siege to life, and press the dire blockade;
But unextinguished avarice still remains,
And dreaded losses aggravate his pains. *Johnson.*

MALAGA, a considerable city of Spain, in the kingdom of Granada, on the coast of the Mediterranean. It is said to be the third city of Spain in commercial importance, and stands at the head of a deep bay, having a large plain to the north, and being sheltered east and west by lofty mountains.

Mr. Jacob, who visited it from Gibraltar during the late peninsular war, has given the best modern description of it with which we are acquainted. Like all Spanish towns, he says, it is a most beautiful object at a distance, but will not bear a near inspection. The Alameyda is the only part of the town which is handsome, and that is truly magnificent. It consists of a foot-walk in the middle, about eighty feet wide, with orange and oleander trees planted on each side: without these are good carriage roads, and on both sides a row of sumptuous and elegant houses. When the trees grow to a size large enough to afford shade it will be a charming spot, but at present they are not much taller than shrubs. At the end of this walk is placed a beautiful marble fountain, consisting of three basins ranged above each other, and gradually diminishing in size: from the lower basin a column rises, supported by beautiful female figures, on which the second rests: the third basin is raised on a similar column, supported by other groups of figures, and the whole work is beautifully executed. It is said to have been a present from the republic of Genoa to the emperor Charles V.; on its passage it was captured by an Algerine corsair, and afterwards retaken by Don Berandino de Mendoza, who landed it at this city.

The streets of Malaga are very narrow, while each house, surrounding a court into which the windows look, is very large. There is only one square in the town, and that is neither spacious nor handsome; and the churches and convents are so crowded among the houses, that whatever beauty they may possess is nearly concealed. An ancient castle in good preservation, built by the Moors, called Gibralfaro, stands on the side of a hill communicating with the city: from many

Roman inscriptions found here, especially by our countryman Carter, it is evident that this fortress was the site of a Roman temple and castle, and the bricks, in some parts of the foundation, are manifestly the work of that people; but the whole superstructure is purely Arabic. The entrances are protected by a contrivance generally found in the Moorish fortresses; over each door and window a kind of chimney is constructed the bottom of which is level with the upper part of the entrance, and the top terminates at the parapet; through these chimneys the besieged could shoot their arrows on the heads of their assailants, and be themselves secure from their attacks. The modern art of fortification, if applied to this castle, would make it impregnable; and, as it commands the city, it would be of the greatest military importance. During the wars in 1487 the capture of this castle, and the submission of the Moorish garrison to the arms of Ferdinand, caused the ultimate success of the Christians. There is another Moorish building which is outwardly in great perfection; it was formerly a kind of dock, in which the Moorish galleys were laid up, but it is now converted into storehouses. An Arabian palace, the Alcasaba, stood formerly near the shore, but it has been partly destroyed, to make room for a modern structure, which is now nearly completed: it is the new custom-house, and stands near the water; the style is purely Spanish, and is very beautiful.

The cathedral is a fine object, and said to be as large as St. Paul's. Its style of building is a mixture of Roman and Gothic, though it was erected long after the power of those nations was extinct; for it was begun in 1529, and consecrated in 1588. Being closely surrounded with houses, it is not seen to advantage. 'Catholic churches generally,' says our traveller, 'appear less in size than Protestant cathedrals, from the choir being placed in the centre, and the high altar in another part of the building. The number of chapels also, as well as the images and pictures, which abound in the former, contribute to this effect. The interior of this church is finished with exquisite taste: it is an oblong spheroid, with a row of Corinthian pillars, around which is the nave; these pillars support a lofty roof of well turned arches, with the sky painted in the compartments. The high altar and the pulpit are of beautiful flesh-colored marble, and the choirs so singularly fine, that Palomino, the biographer of Spanish artists, calls it the eighth wonder of the world. It contains about fifty stalls, curiously carved in cedar and mahogany, and a considerable number of statues of saints, the work of Alonzo Cano, and of his pupil Pedro de Mena, whose celebrity is little inferior to that of his master. The paintings in this church are but inferior. There are some few marble monuments, particularly one to the memory of the late bishop, Don Jesse de Molina, who is celebrated for having expended in church plate, and in ornamenting this edifice, the enormous sum of 1,500,000 reals, or nearly £20,000 sterling: the revenue of the see Mr. Jacob found to be about 100,000 dollars annually, principally derived from tithes on wine,

which are sold by auction just before the vintage.

There are two fine organs in this cathedral, which add much to its beauty; the pipes are not perpendicular, but project from the instrument, and their terminations are in the form of the large end of a trumpet, so that they appear like a range of trumpets over the top of the choir, diminishing gradually in length. The church, within the walls, is 400 feet in length, and 260 in breadth; the height, from the floor to the arches, is 140 feet. The palace of the bishop forms one side of a small square in front of the cathedral, but the majestic height and grand dimensions of the latter make the palace, which in another situation would appear a handsome building, look small. The other churches and monasteries contain nothing worth describing.

'It is not, however, the edifices constructed by human labor that render Malaga an interesting spot,' says Mr. Jacob, 'but the benign climate and fruitful soil with which providence has blessed it, and which the industry of the people has been exerted to improve. The rivers Guadalmedina and Guadalorce, which empty themselves at this place into the ocean, wind round the mountains, and pass through valleys the richest and most fertile in the world; and it is upon the banks of these rivers that the prodigious quantity of figs, almonds, oranges, lemons, olives, sumach, juniper berries, wax, and honey, are produced, which, with the dried raisins and wines from the mountains, and the cork of the hills, form the foundation of the natural external commerce of Malaga. The productions with which Europe is supplied from the western world, such as coffee, cotton, cocoa, indigo, and pimento, had been all cultivated in this part of Spain for many ages before America was discovered; and, though it has only been of late years that any great increase in their cultivation has taken place, yet, from the productiveness of the soil, from the specimens that have been produced, and the political prospects of the world, the hope is entertained that this part of Spain may in time be rendered capable of superseding the necessity of cultivating the West India Islands by the labor of slaves.'

The commerce of Malaga was very flourishing during the year of its closer intercourse with Great Britain. The peace with England opened a vent for its commodities, which was improved with assiduity, and the exports of wines and fruits during 1809-10, amounted to nearly three times as much as in any preceding year. In all periods the trade to America from Malaga was much less extensive than from Cadiz, but, in proportion to its extent, of far more benefit to the country; because eleven parts in twelve of its exports consist of native productions; whereas, at Cadiz, the goods imported from foreign countries constitute rather more than three-fifths of its exports. Malaga may, as we have said, in point of commercial consequence, be considered as the third port in Spain; Cadiz having been very far before every other at all periods; Barcelona follows; then this city. But one singular difference exists between them: the exports in this place exceed the imports, because there is much to part with, and few wants to be sup-

plied. But at Cadiz, Barcelona, Corunna, St. Andero, and even Alicant, the imports from America have every year exceeded the exports.

Several manufactured articles, exported hence, are made in this city and Granada. The flax and hemp grown here are remarkably good, and a considerable quantity of linen and sail-cloth is sent to the colonies. The silk in this part of the country is manufactured into satins, velvets, taffetas, ribands, and silk stockings (principally at Granada indeed) for home consumption, and some part is exported. There are also manufactories of paper, leather, soap, hats, tapes, and woollen cloths, but all on a small scale. The port of Malaga is very good for shipping; and within the last thirty years an additional mole has been constructed, which encloses on three sides one of the best artificial harbours in the world: it is not large, but there is sufficient depth of water for a ship of the line, which may lie close to the pier. The fishermen are very skilful in the management of their boats, and form a numerous body.

Malaga was built by the Phœnicians several centuries before the Christian era, and is said to have been called Malacha, or Malaca, on account of the great quantities of salt fish sold here. In process of time it passed under the dominion of the Carthaginians, Romans, Goths, and Moors. Strabo says a great quantity of salt, manufactured in its environs, was disposed of on the opposite coast of Africa. That it was a place of importance, under the Romans, we may infer from the monuments that have been discovered in its vicinity. It was not till the year 1487 that Ferdinand and Isabella recovered it, after an obstinate resistance, from the dominion of the Moors. and its importance has been ever since as well appreciated as any of the advantages of this fine country.

MALAGRIDA (Gabriel), an Italian Jesuit, born in 1686. He was appointed to conduct missions into Portugal. To great eloquence he added the most ardent zeal for the interest of the society. He soon became respected as a saint, and consulted as an oracle. When a conspiracy was formed by the duke of Aveiro against the king of Portugal, it is said that he and other two Jesuits were consulted concerning the measure, and gave it as their opinion, that it was only a venial crime to kill a king who persecuted the saints. About that time the king of Portugal banished the Jesuits from his kingdom; and three of them were apprehended, viz. Malagrida, Alexander, and Mathos, who were accused of having approved his murder. But either the trial could not be proceeded in without the consent of the pope, or no proof could be sufficient to condemn Malagrida; and he therefore was delivered to the inquisition, as having formerly advanced some propositions bordering on heresy. Two publications which he acknowledged, and which gave the fullest indications of complete insanity, were the foundation of these suspicions. The one was written in Latin, entitled *Tractatus de vitâ et imperio Antichristi*; the other in Portuguese, entitled *The life of St. Anne*, composed with the assistance of the blessed Virgin Mary and her most holy Son.

They are full of extravagance and absurdity. This enthusiast pretended to have the gift of miracles. He told the judges of the inquisition, that God himself had declared him his ambassador, apostle, and prophet; that he was united to God by a perpetual union; and that the Virgin Mary, with the consent of Jesus Christ and of the whole Trinity, had declared him to be her son. For such extravagances this unfortunate wretch was condemned by the inquisition; but his death was hastened by a vision which he eagerly revealed. Upon the death of the marquis of Tancourt, commander of Estremadura, discharges of cannon were made in honor of him by the castle of Lisbon, and by all the forts on the banks of the Tagus. These being heard by Malagrida in his dungeon, he supposed, from their happening during the night, that the king was dead. Next day he demanded an audience from the members of the inquisition, when he told them that he had been ordered by God to show the minister of the holy office that he was not a hypocrite, for the king's death had been revealed to him, and he had seen in a vision the torments to which his majesty was condemned for having persecuted the religious of his order. This was sufficient to accelerate his punishment; he was burnt on the 21st of September, 1761, in his seventy-fifth year, not as a conspirator, but as a false prophet.

MALAGUETTA, a name that has been sometimes given to the Grain or Pepper Coast, a country of Guinea, bounded by Sierra Leone on the west, and the Ivory Coast on the south-east, extending about 300 miles along the Atlantic.

MALANGARA, CAPE, anciently called Olimia, a promontory of Greece, in the isthmus of Corinth, forming a sort of peninsula.

MALAIT, or MALER, a long and irregular lake of Sweden, to the north and west of Stockholm, about eighty miles in length, and of various breadth. It is said to contain upwards of 1200, great and small, islands; and forms a variety of gulfs and bays. It communicates with the Baltic at Stockholm, and on the south side a canal has been made, which communicates with an inlet of that sea at Suder-Telge.

MALAPERT, *adj.* Mal and pert. Saucy; impudent.

Beware your countenance be sene,
Nor overlight, ne rechelesse, ne bolde,
Ne *malapert*, ne rennyng with your tong,
For she will you obeisin, and be holde.

Chaucer's Court of Love.

Peace, master marquis, you are *malapert*;
Your fire-new stamp of honour is scarce current.

Shakspeare.

If thou dar'st tempt me further, draw thy sword.
—What, what? nay, then, I must have an ounce
or two of this *malapert* blood from you.

Id. Twelfth Night.

Are you growing *malapert*? Will you force me to
make use of my authority?

Dryden's Spanish Fryar.

MALATE, a salt formed by the combination of the Malic acid with various bases. See CHEMISTRY.

MALATIA, the ancient Melitene, once the capital of Armenia Minor, a town of Asia Minor, about fifteen miles to the west of the Euphrates

It stands in a fine plain, between that river and the Melas, and contains a considerable population. The spot is celebrated for a great battle fought in 572, between Justinian and Chosroes. Ninety miles W. N. W. of Diarbekir.

MALDA, a small district or hundred of Bengal, situated in Rajmahal, on the north-east side of the Ganges. Its principal towns are Malda and Pandua, called also Purua, which in the fourteenth century was the capital of Bengal.

MALDA, the chief town of the above district, the residence of the commercial agent of the East India Company, is a modern place, and has been built out of the ruins of Gour. The vicinity abounds with mulberry trees, on which are reared an immense number of silk-worms. It carries on a very considerable trade in raw silk, and mixed cotton and silk goods. The East India Company established a factory here early in the seventeenth century. Long. 88° 4' E., lat. 25° 3' N.

MALDEN, or MALDON, a borough and market town of Essex, seated on an eminence at the conflux of the Chelmer and Blackwater, where they enter the sea. It is thought by some antiquaries to have been the ancient Camelodunum, the first Roman colony in Britain. The town consists of one principal street, nearly a mile long, with another smaller, from which run several lanes. It was besieged, plundered, and burnt, by queen Boadicea; but the Romans repaired it. It was again ruined by the Danes, but rebuilt by the Saxons. It is governed by two bailiffs, six aldermen, eighteen capital burgesses, a steward, recorder, and above 400 commoners, who all vote for its members of parliament. It has a convenient haven for vessels of 400 tons; and carries on a good trade in coals, iron, corn, and deals. It has two parish churches, and a large library for the use of the minister and the neighbouring clergy. The custom of Borough English is still preserved here; that is, the youngest, and not the eldest son, succeeds to the burgage tenure at the death of his father. Here formerly stood a Carmelite priory, and an hospital for lepers. The town was incorporated in the reign of Philip and Mary, and has sent two members to parliament ever since the 2nd of Edward III. Here is a grammar school, a charity workhouse, a market on Saturday, and a fair on the 18th of September. Malden Water is navigable up to the town, which lies eight miles east of Chelmsford, and thirty-seven north-east of London.

MALDIVA ISLANDS. The Maldiva Islands are a large chain, lying south-west of Cape Comorin, between the latitude of 7° 30' N. and the equator. They are said to be upwards of 1000 in number, divided into several groups, called by the natives atollons, of which there are thirteen principal ones. Though so near the coast of India, this archipelago is very little known to us, and the only account we have been able to procure of it is contained in the relation of the shipwreck of Pyrrard, a Frenchman, and which we shall translate in his own manner. 'It is marvellous,' says he, 'to see each of these atollons encompassed by a great bank of rock all round, there being no human artifice which could so well shut with walls a space of ground like this.'

These atollons are all round or oval, having each thirty leagues circumference, some a little more, others a little less, and are all close to each other, without any of them touching; between each two are channels of the sea, some broad, others very narrow. Being in the middle of an atollon, you see round you this great bank of rocks, which, as I have said, surrounds and defends the islands against the impetuosity of the sea. But it is a frightful thing, even to the most courageous, to approach this bank, and to see, coming from a great distance, the waves, breaking with fury all around; for this, I assure you, is a thing that I have seen an infinity of times. The surf is greater than a house, and as white as cotton; so that you see round you like a white wall, principally when the tide is at the full.' He also adds, that each separate island is surrounded by its own reef; and that the currents which set through these narrow channels are so violent, that it would be impossible for the inhabitants to communicate from island to island, if nature had not provided for this purpose. Each atollon is divided by two channels, which cut it diagonally, and of which the extremities unite with the great channels that separate the atollons; so that to pass from one atollon to another, when the current sets from the west, you quit the atollon you are on by the eastern diagonal channel, where the water is smooth, and you are carried by the current to the opposite atollon, which you enter by the diagonal channel on the west. There are several ship channels between the atollons, of which those best known are the Cardiva Channel on the north, the Equinoctial Channel, and the One and Half Degree Channel.

The inhabitants are Mahomedans, in their appearance resembling the Moors of India, and are considered quiet and inoffensive. They trade in their own boats, made of cocoa-nut trees, and of the burden of thirty tons, to Bengal, and other places; exchanging the produce of their islands, consisting of cocoa-nuts, coir, cocoa-nut oil, cowries, and tortoise-shell, for betel-nut, china-ware, opium, coffee, iron, and other articles of domestic consumption; they also send large quantities of dried bonito to Achen. They make very fine mats for sleeping on.

The principal island is named Maie, or King's Island, being the residence of a chief, whose house is two stories high; the dwellings of his subjects are scattered about the island, built of wood, and covered with the leaves of the cocoa palm. There are many cannon on this island, particularly near the king's residence, where is their principal magazine. The anchorage is very close to the shore, on a coral bottom; the native boats lie inside the rocks, the channels being closed by booms at night.

The following account of the currents among these islands is from Mr. Horsburgh's Directory. 'In March and April the current sets generally to the E. N. E. about the south atollon, from the equator to latitude 4° or 5° S., and extends far to the east and west of the meridian of the islands. This current is sometimes strong, from fifty to sixty miles in twenty-four hours, at other times weak and fluctuating. From the equator

in the same months, to latitude 8° or 9° N., the current sets mostly to the south-west. In May the current sets strong to the eastward near the equator, sometimes from fifty to seventy miles in twenty-four hours, in the track near the Maldivas, from latitude 2° N. to 2° S., the winds being then variable, but mostly from the westward. In the latter end of June and July, when the south-east trade approaches the equator, the currents set often to the W. N. W. about the south end of the Maldivas, particularly to the south of the equator. In October, November, and December, the current sets strong to the west, at times in the track between Ceylon and these islands.'

MALDONADO, a small river of the province of Buenos Ayres, which enters the sea in the bay of Maldonado.

MALDONADO, an island of the Atlantic Ocean, situated near the coast of Buenos Ayres, at the entrance of the La Plata.

MALDONADO, a town of Buenos Ayres, South America, is situated on a bay formed by a neck of land, exposed to the south-west winds. The isle Goretta, off the bay, is strongly fortified with four batteries mounting twenty-four pounders, which command the whole bay and the ship-channel on the east, between the island and neck of land. The population of Maldonado is about 2000; it was founded in 1730.

MALDONAT (John), a Spanish Jesuit, born in 1534. He was accused of heresy, and of procuring a fraudulent will, by seducing the president St. Andre at Paris to bequeath his estate to the Jesuits. Peter Gondi acquitted him of the first charge, and the parliament of Paris of the other. He retired after these troubles to Bourges; but went to Rome, by order of pope Gregory XIII., to superintend the publication of the Septuagint; and there, after finishing his commentary on the Gospels in 1582, he died in the beginning of 1583. He also wrote commentaries on Jeremiah, Baruch, Ezekiel, and Daniel; a treatise on the sacraments, on grace, on original sin; and several other pieces printed at Paris in 1677, in folio. His style is clear, lively, and easy. He does not servilely follow the scholastic divines; but is free, and sometimes singular, in his sentiments.

MALE, *adj. & n. s.* Fr. *male*. Masculine: one of the masculine sex.

As it is writen in the lawe of the Lord, for every male kynde openynge the wombe schalle be cleped holy to the Lord. *Wicliif. Luk. ii.*

Male and female created he them. *Gen. i.*

In most the male is the greater, and in some few the female. *Bacon.*

We are no sooner born thine than we are persecuted. If the church travail and bring forth a male, she is in danger of the Dragon's streams. *Bp. Hall.*

There be more males than females, but in different proportions. *Graunt's Bills of Mortality.*

Which shall be heir of the two male twins, who, by the dissection of the mother, were laid open to the world? *Luche.*

You are the richest person in the commonwealth: you have no male child; your daughters are all married to wealthy patricians. *Swift.*

MALE, an island in the Indian Ocean, the principal of the Maldives, about four miles in circumference, and situated nearly in the centre. It is the most fertile, and contains a town, which is the residence of the prince. Long. $73^{\circ} 10' E.$, lat. $6^{\circ} 20' N.$

MALEADMINISTRATION, *n. s.* Lat. *male*; old Fr. *male*, bad. Bad management of affairs.

A general canonical denunciation is that which is touching such a matter as properly belongs to an ecclesiastical court, for that a subject denounces a superior for *maladministration*, or a wicked life.

From the practice of the wisest nations, when a prince was laid aside for *maladministration*, the nobles and people did resume the administration of the supreme power.

MALEBRANCHE (Nicholas), an eminent French metaphysician, the son of Nicholas Malebranche, secretary to the French king, was born 1638, and admitted into the congregation of oratory in 1660. He at first studied philology and history; but afterwards, meeting with Descartes's Treatise on Man, he applied himself entirely to philosophy. In 1699 he was admitted an honorary member of the Royal Academy of Sciences at Paris. Although of a delicate constitution, he enjoyed tolerable health till he died 1715, aged seventy-seven. He meditated with his windows shut, to keep out the light, which disturbed him. His works are celebrated; particularly his *Recherche de la Verité*, i. e. Search after truth. Locke styles him an 'acute and ingenious author;' he has 'many very fine thoughts, judicious reasonings, and uncommon reflections, in his Recherche,' yet he refutes the chief principles of his system. Malebranche wrote many other pieces, confirm his doctrine, and to clear it from objections.

MALECA, or **MELECCA**, a cape on the north east of the island of Candia, anciently the Promontorium Ciamum. Long. $24^{\circ} 4' E.$, lat. $35^{\circ} N.$

MALECONTENT, *adj.* } Male and content.
MALECONTENTED, } tent. Discontented; dissatisfied.
MALECONTENTEDNESS, *n. s.* }

Brother Clarence, how like you our choice,
 That you stand pensive, as half *malecontent*?

Shakspeare.

Poor Clarence! Is it for a wife
 That that art *malecontent*? I will provide thee.

Id.

The king, for securing his state against mutinous and *malecontented* subjects, who might have refuge in Scotland, sent a solemn ambassage to conclude a peace.

Bacon.

The other mutiny was of some few *malecontents*, perhaps those strangers which sought their own promotion under the wing of Israel.

Bp. Hall.

The *malecontent* is neither well full nor fasting; and, though he abound with complaints, yet nothing likes him but the present; for what he condemns while it was, once passed, he magnifies, and strives to recall it out of the jaws of time.

Id.

They would ascribe the laying down my paper to spirit of *malecontentedness*.

Spectator.

They cannot signalize themselves as *malecontents*, without breaking through all the softer virtues.

Adison's Freeholder.

The usual way in despotick governments is to confine the *malecontent* to some castle. *Addison.*

MALEDICTION, *n. s.* Fr. *malediction*; Lat. *maledictio*. Curse; execration; denunciation of evil.

Then let my life long time on earth maintained be,

To wretched me, the last, worst *malediction*.

Sidney.

The true original cause, divine *malediction*, laid by the sin of man upon these creatures which God hath made for the use of man, was above the reach of natural capacity.

Hooker.

In Spain they staid near eight months, during which Buckingham lay under millions of *maledictions*; which, upon the prince's arrival in the west, did vanish into praises.

Wotton.

MALEFACTION, *n. s.* Lat. *male* and *facio*. A crime; an offence.

Guilty creatures at a play
 Have, by the very cunning of the scene,
 Been struck so to the soul, that presently
 They have proclaimed their *malefactions*.

Shakspeare.

A jaylor to bring forth
 Some monstrous *malefactor*.

Id. Antony and Cleopatra.

God uses not the rod, where he means to use the sword. The pillory or scourge is for those *malefactors* which shall escape execution.

Bp. Hall.

Fear his word,
 As much as *malefactors* do your sword.

Roscommon.

If their barking dog disturb her ease,
 The unmannered *malefactor* is arraigned.

Dryden.

The *malefactor* goat was laid,

On Bacchus' altar, and his forfeit paid. *Id.*

It is a sad thing when men shall repair to the ministry, not for preferment but refuge; like *malefactors* flying to the altar, only to save their lives.

South.

MALEFIC, *adj.* } Lat. *maleficus*. Mischievous; hurtful.
MALEFIQUE, }

MALESHERBES (C. W. de Lamoignon de), a French statesman and advocate, descended from a family eminent for its talents and probity, was the son of William de Lamoignon, chancellor of France, and born at Paris in 1721. He studied at the Jesuits' college, and first became a counsellor in the parliament of Paris. He succeeded his father in 1750 as president of the court of aids, and was made at the same time superintendant of the press. On the suppression of parliaments, and of the court of aids, Malesherbes was exiled to his country seat, where he devoted his leisure to the study of statistics and agriculture. On the accession of Louis XVI. he resumed his presidentship over the revived tribunal, and was appointed a minister of state in 1775; but, finding his plans counteracted, he resigned his office in the May of the following year, and went to Switzerland. Recalled to the king's councils, in 1786, he drew up memoirs, 'On the Calamities of France and the Means of repairing them;' but, his advice being rejected, he took a final leave of the court. In 1790 he published An Essay on the Means of accelerating the Progress of Rural Economy in France; and took no part in the public proceedings of the government, until the decree of the

National Convention for the trial of the king, when he nobly offered himself as the advocate of his unfortunate master. This generous attachment naturally excited the jealousy of the demagogues now in power; and scarcely had he returned home, when his daughter, madame Lepelletier Rosambo, and her husband, were arrested and conducted to Paris; and his own arrest, and that of his grand-children, soon followed. Malesherbes himself was beheaded April 22d, 1794, and bore his sufferings with an equanimity becoming his character. His bust was afterwards ordered to be placed with those of the great men who have reflected honor upon France. Besides the tracts above named he was the author of *Observations sur l'Histoire Naturelle de Buffon*, 2 vols. 8vo., published after his death.

MALEVOLENCE, *n. s.* } Lat. *malevolentia*.
MALEVOLENT, *adj.* } Ill will; inclina-
MALEVOLENTLY, *adv.* } tion to hurt others;
 malignity.

The son of Duncan
 Lives in the English court; and is received
 Of the most pious Edward with such grace,
 That the *malevolence* of fortune nothing
 Takes from his high respect.

Shakspeare. Macbeth.
 The oak did not only resent his fall, but vindicate him from aspersions *malevolently* cast upon him.
Howel.

I have thee in my arms,
 Though our *malevolent* stars have struggled hard,
 And held us long asunder.

Dryden's King Arthur.
 This frequently cuts off charity from the greatest objects of compassion, and inspires people with a *malevolence* towards those poor decrepit parts of our species, in whom human nature is defaced by infirmity and dotage.
Addison.

MALHERBE (Francis de), the first French poet of his age, was born at Caen about 1556, of a noble family. He quitted Normandy at seventeen years of age; and went into Provence, where he attached himself to the family of Henry D'Angouleme, the natural son of king Henry II, and was in the service of that prince till he was killed in 1586. Cardinal de Perron, being informed of his merit and abilities, introduced him to Henry IV., who took him into his service. After that monarch's death, queen Mary de Medicis settled a pension of 500 crowns upon our poet, who died at Paris in 1628. The best and most complete edition of his works is that of 1666, with Menage's remarks. Boileau considers him as the father of French poetry; but he composed with great difficulty.

MALIC ACID, an acid abounding in the juice of unripe fruits, particularly in apples; so named from Latin *malum*, an apple. See **CHEMISTRY**, and **ACID**.

MAL'ICE, *n. s. & v. a.* } Fr. *malice*; Lat.
MALICIOUS, *adj.* } *malitia*. Evil inten-
MALICIOUSLY, *adv.* } tion; badness of de-
MALICIOUSNESS, *n. s.* } sign; grudge; to re-
 gard with ill will.

The cause why he this fly so *maliced*,
 Was that his mother which him bore and bred,
 The most fine-fingered workman on the ground,
 Arachne, by his means, was vanquished.

Spenser.

Duncan is in his grave;
Malice domestick, foreign levy, nothing;
 Can touch him further! *Shakspeare. Macbeth.*
 I grant him bloody,
 Sudden, *malicious*, smacking of every sin
 That has a name. *Id.*

We must not stint
 Our necessary actions in the fear
 To cope *malicious* censures; which eve
 As ravenous fishes do a vessel follow
 That is new-trimmed. *Id. Henry VIII.*

Malice scorned, puts out
 Itself; but argued, gives a kind of credit
 To a false accusation. *Massinger.*
 Not out of envy or *maliciousness*,
 Do I forbear to crave your special aid.

Herbert.
 When Satan, who late fled before the threats
 Of Gabriel out of Eden, now improved
 In meditated fraud and *malice* bent
 On man's destruction, maugre what might hap
 Of heavier on himself, fearless returned. *Milton.*

Thou knowest what *malicious* foe,
 Envyng our happiness, and of his own
 Despairing, seeks to work us woe and shame.

Id.
 God hath forgiven me many sins of *malice*, and
 therefore surely he will pity my infirmities.
Taylor's Holy Living.

The air appearing so *malicious* in this morbidly
 conspiracy, exacts a more particular regard.
Harvey on Consumption.

I have loved!
 What can thy ends, *malicious* beauty, be?
 Can he who killed thy brother, live for thee?

Dryden.
 A man might do this now if he were *maliciously*
 disposed, and had a mind to bring matters to ex-
 tremity. *Id.*

An intrigue, between his majesty and a junto of
 ministers *maliciously* bent against me, broke out, and
 had like to have ended in my utter destruction.

Swift.
 Wit loses its respect with the good, when seen in
 company with *malice*. *Sheridan.*

MALICE, in ethics and law, is a formed design of doing mischief to another; it differs from hatred. In murder, it is malice makes the crime; and if a man, having a malicious intent to kill another, in the execution of his malice kills a person not intended, the malice shall be connected to his person, and he shall be adjudged a murderer. The words *ex malitia præcogitata* are necessary to an indictment of murder, &c. And this *malitia præcogitata*, or malice prepen-
 se, may be either express or implied. Express malice is, when one, with a sedate, deliberate mind, and formed design, kills another; which formed design is evidenced by external circumstances, discovering that intention; as lying in wait, antecedent menaces, former grudges, and concerted schemes to do him some bodily harm. Besides, where no malice is expressed, the law will imply it; as where a man wilfully poisons another: in such a deliberate act the law presumes malice, though no particular enmity can be proved. And if a man kills another suddenly, without any, or without a considerable provocation, the law implies malice: for no person, unless of an abandoned heart, would be guilty of such an act upon a slight cause.

MALIGN', *adj.* & *v. a.*

MALIG'NANCY, *n. s.*

MALIG'NANT, *adj.* & *n. s.*

MALIG'NANTLY, *adv.*

MALIGN'ER, *n. s.*

MALIGN'ITY,

MALIG'NANTLY, *adv.*

Fr. maligne ; Lat. malignus.
Evil disposed ; unfavorable ; malicious : to regard with envy or ill will : hence to calumniate : malignant is used as synonymous with malign, as also for dangerous or destructive ; also for a person of evil dispositions : historically it was a cant word of opprobrium in the civil wars for the adherents of Charles I. and the church of England.

Strangers conspired together against him, and *malign'd* him in the wilderness. *Reclus, xlv. 18.*

The people practise what mischiefs and villanies they will against private men, whom they *malign*, by stealing their goods, or murdering them.

Spenser on Ireland.

It is hardly to be thought that any governor should so *malign* his successor, as to suffer an evil to grow up which he might timely have kept under.

Id.

Occasion was taken, by several *malignants*, secretly to undermine his great authority in the church of Christ.

Hogber.

My stars shine darkly over me ; the *malignancy* of my fate might, perhaps, distemper yours ; therefore I crave your leave that I may bear my evils alone.

Shakspeare.

O *malignant* and ill-boding stars !

Now art thou come unto a feast of death. *Id.*

Not friended by his wish to your high person, His will is most *malignant*, and it stretches Beyond you to your friends. *Id. Henry VIII.*

Now arriving

At place of potency, and sway of the state,

If he should still *malignantly* remain

Fast foe to the plebeians, your voices might

Be curses to yourselves. *Id. Coriolanus.*

Witchcraft may be by operation of *malign* spirits.

Bacon.

He that turneth the humours back, and maketh the wound bleed inwards, endangereth *malign* ulcers and pernicious imposthumations. *Id. Essays.*

Whether any tokens of poison did appear, reports are various ; his physicians discerned an invincible *malignity* in his disease. *Hayward.*

No redress could be obtained with any vigour proportionable to the *malignity* of that far-spread disease. *King Charles.*

Then it follows that original sin is of less *malignity* than the least actual sin in the world.

Jeremy Taylor.

They inveighed against the *malignant* party, that had sought to cause jealousies between them and their brethren of Scotland. *Clarendon.*

If in the constellations war were sprung,

Two planets, rushing from aspect *malign*

Of fiercest opposition, in mid sky

Should combat, and their jarring spheres confound.

Milton.

To good *malignant*, to bad men benign. *Id.*

Such as these are philosophy's *maligners*, who pronounce the most generous contemplations needless unprofitable subtleties. *Grunville.*

They hold, that the cause of the gout is a *malignant* vapour that falls upon the joint ; that the swelling is a kindness in nature, that calls down humours to damp the malignity of the vapours, and thereby assuage the pain. *Temple*

Let the learned begin

The enquiry, where disease could enter in :

How those *malignant* atoms forced their way, What in the faultless frame they found to make their prey ? *Dryden.*

If it is a pleasure to be envied and shorn at, to be *malign'd* standing, and to be despised falling ; then is it a pleasure to be great, and to be able to dispose of men's fortunes. *South.*

Of contempt, and the *malign* hostile influence it has upon government, every man's experience will inform him. *Id.*

This shews the high *malignity* of fraud, that in the natural course of it tends to the destruction of common life, by destroying trust and mutual confidence. *Id.*

The infection doth produce a bubo, which, according to the degree of its *malignancy*, either proves easily curable, or else it proceeds in its venom.

Wise man's Surgery.

Deeds are done which man might charge aright On stubborn fate, or undiscerning might, Had not their guilt the lawless soldiers known, And made the whole *malignity* their own. *Tickel.*

Lest you think I rally more than teach,

Or praise *malignly* arts I cannot reach ;

Let me for once presume to instruct the times.

Pope.

I thought it necessary to justify my character in point of cleanliness, which my *maligners* call in question. *Swift.*

They have seen all other notions besides their own represented in a false and *malignant* light ; whereupon they judge and condemn at once.

Watts's Improvement of the Mind.

Where shrieks, the roaring flame, the rattling chain,

And all the dreadful eloquence of pain,

Our only song ; black fire's *malignant* light,

The sole refreshment of the blasted sight. *Young.*

MAL'KIN, *n. s.* From mal, moll, Mary, and kip the diminutive termination. A kind of rag-mop made for sweeping ovens ; thence any scare-crow figure ; thence a dirty wench.

The kitchen *malkin* pins

Her richest lockram 'bout her recchy neck,

Clamb'ring the walls to eye him.

Shakspeare. Coriolanus.

MALL, *n. s.* & *v. a.*

MALL'EABLE, *adj.*

MALLEABILITY, *n. s.*

MALL'EABLENESS,

MALL'EATE, *v. a.*

MALL'ET, *n. s.*

Lat. malleus, a hammer ; Fr. malleable.

Mall and mallet are

both used for a kind

of heavy club or ham-

mer : Spenser uses the

former for a heavy blow : other writers have used it as a verb for to strike or beat with a mall : malleable is, capable of, or apt to, spread by beating ; ductile : Butler uses it satirically for cowardly : malleability and malleableness, the quality of enduring or spreading under the hammer : to malleate is to forge or shape by the hammer.

With mighty mall,

The monster *malle* him made to fall.

Faerie Queene.

Make it more strong for falls, though it come not to the degree to be *malleable*. *Bacon.*

Give that reverend head a mall

Or two, or three, against a wall.

Hudibras.

The beaten soldier proves most manful,

That like his sword endures the anvil ;

And justly's held more formidable,

The more his valour's *malleable*.

Id.

The vessel soldered up was warily struck with a wooden mallet, and thereby compressed.

Their left hand does the caulking in

The rattling mallet with the right they lift.

Dryden.

Supposing the nominal essence of gold to be a body of such a peculiar colour and weight, with the malleability and fusibility, the real essence is that constitution on which these qualities and their union depend.

Locke.

The bodies of most use that are sought for out of the earth are the metals which are distinguished from other bodies by their weight, fusibility, and malleableness.

Id.

He took a mall, and after having hollowed the handle, and that part which strikes the ball, he enclosed in them several drugs.

Addison's Spectator.

If the body is compact, and bends or yields inward

to pression, without any sliding of its parts, it is hard and elastic, returning to its figure with a force rising from the mutual attraction of its parts: if the parts slide upon one another; the body is malleable or soft.

Newton's Opticks.

He first found out the art of melting and malleating metals, and making them useful for tools.

Derham.

MALL, *n. s.* Goth. and Swed. *mal*, is an enclosed place: another origin of this word may be, a level ground for playing with malls and balls; a promenade or public walk.

This the beau monde shall from the mall survey, And hail with musick its propitious ray.

Pope.

MALLEABILITY. Different metals are possessed of this quality in different degrees. The following table of their malleability and ductility from Thenard may be found useful.

Ductile and Malleable in alphabetical order.	Brittle in alphabetical order.	Arranged nearly in the order of facility with which they pass through the wire-plate.	Arranged nearly in the order of facility with which they pass through the laminating cylinders.
Cadmium Copper Gold Iridium Iron Lead Mercury Nickel Osmium Palladium Platinum Potassium Silver Sodium Tin Zinc	Antimony Arsenic Bismuth Cerium Chromium Cobalt Columbium Manganese Molybdenum Rhodium Tellurium Tungsten Titanium Uranium	Gold Silver Platinum Iron Copper Zinc Tin Lead Nickel Palladium? Cadmium?	Gold Silver Copper Tin Platinum Zinc Iron Nickel Palladium? Cadmium?

MALLEOLI, or Pyroholi, in the ancient of war, were bundles of combustible materials, set on fire to give light in the night, or to annoy the enemy: when they were employed for the latter purpose they were shot out of a bow, or fixed to a javelin, and thus thrown into the enemy's engines, ships, &c., in order to burn them. Pitch was always a principal ingredient in the composition.

MALLEOLI, in anatomy, the ancle bones. See ANATOMY.

MALLET, or MALLOCH, (David), an English poet, but a Scotchman by birth, born about 1700. By the penury of his parents, he was compelled to be janitor of the high school at Edinburgh; but he surmounted the disadvantages of his birth and fortune; for when the duke of Montrose applied to the college of Edinburgh for a tutor to educate his sons, Mallet was recommended. When his pupils went abroad, they were entrusted to his care; and, having conducted them through their travels, he returned with them to London. While residing in their family, he began to give specimens of his poetical talents. In 1733 he published a poem on Verbal Criticism: in 1740 he wrote a Life of Lord Bacon, which was prefixed to an edition of his

works. After the death of Pope, lord Bolingbroke employed Mallet to blacken his memory, in revenge for clandestinely printing his Patriot King. In reward for this service, his lordship left him his works, which in 1754 he published in five volumes, quarto, but which not only involved him in difficulties, on account of certain sentiments contained in them subversive of the principles of revealed religion, but which did not produce to the editor any profit. The old duchess of Marlborough assigned in her will the task of writing the duke's life, to Glover and Mallet, with a reward of £1000, and a prohibition to insert any verses. Glover is said to have rejected the legacy with disdain, so that the work devolved upon Mallet; who had also a pension from the duke's son to promote his industry, and was continually talking of the discoveries he had made, but left not, when he died, any historical labors behind him. When Frederick prince of Wales was driven from the palace, and kept a separate court by way of opposition, to increase his popularity by patronising literature, he made Mallet his under secretary, with a salary of £200 a year. Thomson, likewise, had a pension; and they were associated in the composition of the masque of Alfred, which in its original state was

played at Cliefden in 1740. It was afterwards almost wholly changed by Mallet, and brought upon the stage of Drury Lane in 1751, but with no great success. He had before published two tragedies; *Eurydice*, acted at Drury Lane in 1731; and *Mustapha*, acted in 1739. It was dedicated to the prince, and well received, but never revived. His next work was *Amyntor and Theodora*, 1747, a long dull story in blank verse; but in which there is elegance of language and vigor of sentiment. In 1753 his masque of *Britannia* was acted at Drury Lane, and his tragedy of *Elvira* in 1763, when he was appointed keeper of the book of entries for ships in the port of London. In the beginning of the French war, in 1756, when the nation was exasperated by ill success, he was employed to turn the public vengeance upon admiral Byng, and wrote a letter of accusation under the character of A Plain Man. This paper was with great industry dispersed, and Mallet was rewarded with a considerable pension, which he retained to his death. Towards the end of his life he went with his wife to France; but, finding his health declining, he returned alone to England, and died in April 1765. He was twice married, and by his first wife had several children. His stature was diminutive, but, being regularly formed, his appearance, till he grew corpulent, was agreeable, and his conversation elegant and easy. 'Nothing,' says his biographer, 'elevated or dignified can be discerned in his character or principles. As a poet he may lay claim to elegant diction, splendid imagery, and pathetic sentiment, but he is deficient in energy and judgment.'—*Johnson's Lives of the Poets*.

MALLET (Edmund), was born at Melun in 1713, and enjoyed a curacy near that place till 1751, when he went to Paris to be professor of theology in the college of Navarre, of which he was admitted D.D. Boyer Bishop of Mirepoix, who had been at first much prejudiced against him, conferred upon him the see of Verdun. Jansenism had been imputed to him by his enemies, and the Ecclesiastical Gazette accused him of impiety; both imputations equally groundless. He died in Paris in 1755, at the age of forty-two. The principal of his works are, 1. *Principes pour la lecture des Poètes*, 1745, 2 vols, 12mo. 2. *Essai sur l'Etude des Belles Lettres*, 1747, 12mo. 3. *Essai sur les bienséances oratoires*, 1753, 12mo. 4. *Principes pour la lecture des Orateurs*, 1753, 3 vols. 12mo. 5. *Histoire des Guerres civiles de France sous les regnes de Francois II., Charles IX., Henri III., et Henri IV.*, translated from the Italian of D'Avila. His style, like his mind and manners, was easy and unaffected; and his attachment to his friends, his candor, moderation, gentleness, and modesty, rendered him truly amiable. He was employed to write the articles on theology and the belles lettres in the Encyclopedia. He was preparing two important works, viz. *Une Histoire generale de nos Guerres depuis le commencement de la Monarchie*; and *Une Histoire du Conseil de Trente*, in opposition to that of Father Paul, when he died in Paris in 1755.

MALLET DU PAN (Jacques), a modern political writer, was the son of a clergyman of Geneva,

and born in 1749. Having completed his education at college, he first entered on the study of law, but soon deserted it for the belles lettres. He was invited in 1772 to fill the chair of history and French literature at Cassel. Not long after we find him in Switzerland, where he published a political and literary journal, and other works of reputation: so that he was invited to Paris to conduct the political department of the *Mercur de France*. Here he continued during the years 1789, 1790, and 1791, animadverting with freedom on the public affairs; but he found it necessary to quit France in May 1792, and retired to his native city; and afterwards to Berne, where he published several tracts. His apprehensions from the French Directory induced him finally to take refuge in England, where he published, under high patronage, a journal entitled *Mercur Britannique*, from 1796 till the 15th of March 1800. He died the 10th of May, in the latter year, at Richmond, Surrey.

MALLET, MALL, or MAULE in ancient armour, was a weapon much used both by the English and Scots. In the memorable combat fought in Bretagne, in the year 1515, between thirty champions on the part of the English and the like number on that of the French, one of the English champions named Billefort, was armed with a leaden mallet weighing five-and-twenty pounds. We learn also from father Daniel, that the English archers continued to use mallets in the time of Louis XII., who began his reign in 1515, and died in 1524. In the ancient poem of the battle of Flodden, the mention of leaden mallets often occurs:—

Then on the English part with speed

The bills stept forth, and bows went back;

The Moorish pikes and malls of lead

Did deal there many a dreadful thwack.

Ralph Smith equips an archer with a 'maule of lead, five feet long, and a pike with the same, hanging by a girdle with a hook;' meaning, probably, by this description, that the handle of the mall should be of this length, the end armed with a pike or spike; and this implement, we may imagine, was worn at the back, hung by a hook fixed in the centre of its handle, with a loop, or some other contrivance to keep it nearly perpendicular. This weapon seems to have been of French extraction; for we find that in the reign of Charles VI., on occasion of a riot, the populace forced open the arsenal, and armed themselves chiefly with mallets, whence they were styled 'Mailloitiens.' Mallets were tremendous weapons in the hands of strong active men.

MALLETS are much used by artificers who work with chisels, as sculptors, masons, and stone cutters, whose mallet is ordinarily round; and by carpenters, joiners, &c., who use it square. There are several sorts of mallets used for different purposes on ship-board. The caulking mallet is chiefly employed to drive the oakum into the seams of a ship, where the edges of the planks are joined to each other in the sides, deck, or bottom. The head of this mallet is long and cylindrical, being hooped with iron to prevent it from splitting in the exercise of caul-

ing. There is also the serving mallet, used in serving the rigging, by binding the spun yarn more firmly about it than could possibly be done by hand, which is performed in the following manner: the spun yarn being previously rolled up in a large ball or clue, two or three turns of it are passed about the rope, and about the body of the mallet, which for that purpose is furnished with a round channel in its surface, that conforms to the convexity of the rope intended to be served. The turns of the spun yarn being strained round the mallet, so as to confine it firmly to the rope, which is extended above the deck, one man passes the ball continually about the rope, whilst the other, at the same time, winds on the spun yarn by means of the mallet, whose handle acting as a lever strains every turn about the rope as firm as possible.

MALLICOLO, or **MALLICOLLO**, one of the New Hebrides of captain Cook, is an island of the South Pacific Ocean, south-east of *Espritu Sancto*. It is ten leagues long, mountainous, well wooded and watered. The natives appear to be a different race from the other islanders, and are described as more nearly resembling baboons than human beings. This island has acquired an interest from being the place where *La Perouse* was cast away, as was proved by the expedition of Capt. Dillon, in 1827. The relics he obtained there were identified by Lesseps who had left *La Perouse* in *Kamtschkatka*. The other islands of this archipelago form a closely connected chain, beginning with the Sir Joseph Banks's Islands of captain Edwards, on the north. The harbour of Sandwich, on the north-east side of Mallicolo, is in long. $167^{\circ} 57'$ E., lat. $16^{\circ} 25'$ S.

MALLOW, a manor and borough town of Ireland, in Cork, about 120 miles from Dublin. It was incorporated by charter in 1688, and sends one member to the imperial parliament. It is pleasantly situated on the north bank of the Blackwater, over which there is an excellent stone bridge. It has a good church, a market house, and barracks for a troop of horse. Not far distant is a fine spring of moderately tepid water, which bursts out of the bottom of a fine limestone rock, and approaches very near in all its qualities to the hot well waters of Bristol. Mallow is a post town, and has five fairs.

MALLOW, in botany. See **MALVA**.

MAL'LOWS, *n. s.* } Sax. *mæleþe*; Lat.

MAL'VACEOUS, *adj.* } *malva*; Gr. *μαλὰχρ*. A plant: malvaceous is, relating to, or like, mallows.

Shards or mallows for the pot.
That keep the loosened body sound.

Dryden.

MALMEDY, a town of the Prussian province of the Lower Rhine, in the government of Aix-la-Chapelle, on the *Recht*. It has considerable tanneries, and manufactures of cotton stuffs. Twenty miles south of Aix-la-Chapelle. Population 4400.

MALMOHUS-LAN, or **GOVERNMENT OF MALMOHUS**, one of the new divisions of Sweden, lies along the Sound and the Baltic, in the south-west of the kingdom, including a great part of the ancient *Schonen* or *Scania*. Its area is

about 1380 square miles. Population 137,000. The arable land forms about a third of the whole.

MALMSBURY, a town of Wiltshire, ninety-five miles from London, situated on a hill, with six bridges over the river Avon at the bottom; with which, and a brook that runs into it, it is in a manner encompassed. It formerly had a castle and walls, which were pulled down to enlarge the abbey, whose abbots sat in parliament. The Saxon king Athelstan granted the town large immunities, and was buried under the high altar of the church: his monument still remains in the nave of it. The memory of the celebrated Aldhelm, its first abbot, is still kept up by a meadow near this town, called Aldhelm's Mead. By charter of king William III. the corporation consists of an alderman, chosen yearly, twelve capital burgesses, and four assistants. There is an alms house for four men and four women, and near the bridge an hospital for lepers, where it is supposed there was formerly a nunnery. This town carries on a considerable trade in woollen manufactures, has a market on Saturday, and three fairs. It has sent members to parliament ever since the twenty-sixth of Edward I.

MALMSEY, *n. s.* From the island *Malvasia*: a sweet wine.

MALO (St.), or **St. MACLOU** the son of a British gentleman, and cousin to *St. Magloire*, was educated in a monastery in Ireland, and afterwards chosen bishop of *Gui-Castel*, a dignity which his humility prevented him from accepting. The people wishing to compel him he went into Brittany, and put himself under the direction of a holy anchorite, called Aaron, in the neighbourhood of Aleth. Some time after, about 541 he was chosen bishop of that city. He afterwards retired to a solitude near *Xaintes*, where he died November 15th, 565. From him the city of *St. Malo* derives its name; his body having been carried thither, after the reduction of Aleth to a small village called *Guidhalet* or *Guichalet*, and the tranference of the episcopal see to *St. Malo*.

MALYES, or **MALO** (St.), a sea-port in the department of the *Ille* and *Vilaine*, France. It is situated on the island of *Aaron*, which communicates with the continent by means of a mole or causeway of three-quarters of a mile in length, but only fifty-four feet in breadth. The entrance to the town at the end of the mole is defended by a castle, flanked with towers, which, together with four bastions and the ramparts around the town, render it a place of considerable strength. On the north side it is inaccessible, in consequence of rocks and the fortifications erected on them. The town is of an oblong form, its length being from north to south. The houses are high, and in general of stone. The principal public buildings, as the cathedral, the hotel de ville, and the episcopal palace, are in the market place. The harbour is large and well frequented, but difficult of access. The trade is chiefly with England, Holland, Spain, the north of Europe, the colonies, and in the Newfoundland fishery. It exports the products of the surrounding country, and a few manufactures of raw thread

woollens, and linen. Population 10,000. The adjacent town of St. Servan, separated by an inlet of the sea, and situated on higher ground, is sometimes reckoned a suburb of St. Maloes. Forty-five miles north by west of Rennes, and 225 west of Paris.

MALONE (Edmund), was born in Dublin on the 4th of October, 1741, and educated at the school of Dr. Ford in Molesworth Street. He went thence in the year 1756 to the university of Dublin, where he took the degree of bachelor of arts. Here his talents very early displayed themselves; and he was distinguished by a successful competition for academical honors with several young men, who afterwards became the ornaments of the Irish senate and bar. In 1763 he became a student in the Inner Temple; and in 1767 was called to the Irish bar. With a view to those superior opportunities for information and study, and the society which London affords, he soon after settled in this metropolis; and, among the many eminent men with whom he became acquainted, he was naturally drawn by the enthusiastic admiration which he felt for Shakspeare, and the attention which he had already paid to the elucidation of his works, into an intimate connexion with Mr. Steevens. This gentleman having published a second edition of his Shakspeare in 1778, Mr. Malone, in 1780, added two supplementary volumes, which contained some additional notes, Shakspeare's poems, and seven plays, which have been ascribed to him. There appears up to this time to have been no interruption to their friendship; but, on the contrary, Mr. Steevens, having formed a design of relinquishing all future editorial labours, most liberally made a present to Mr. Malone of his valuable collection of old plays, declaring that he himself was now become a dowerer commentator. While Malone, however, was engaged on Shakspeare, he received from Mr. Steevens a request of an extraordinary nature. To a third edition of Johnson and Steevens's Shakspeare, which had been published under the superintendence of Mr. Reed in 1785, Mr. Malone had contributed some notes, in which Mr. Steevens's opinions were occasionally controverted. These he was now desired to retain in his new edition, exactly as they stood before, in order that Mr. S. might answer them. Malone replied, that he could make no such promise; that he must feel himself at liberty to correct his observations, where they were erroneous; to enlarge them, where they were defective; and even to expunge them altogether, where, upon further consideration, he was convinced they were wrong; in short, he was bound to present his work to the public as perfect as he could make it. But he added, that he was willing to transmit every note of that description in its last state to Mr. Steevens, before it went to press. But Steevens persisted in requiring that they should appear with all their imperfections on their head; and, on this being refused, declared that all communication on the subject of Shakspeare was at an end between them. In 1790 Mr. Malone's edition at last appeared, and was sought after and read with the greatest avidity. In 1795 he

was called upon to display his zeal in defence of his author, against the fabrications with which the Irishmen endeavoured to delude the public. Mr. Malone, it is said, saw through the falsehood from its commencement; and laid it open in a volume which was written in the form of a letter to his friend lord Charlemont. Although his attention was still principally directed to Shakspeare, and he was gradually accumulating a most valuable mass of materials for a new edition of that poet, he drew together from various sources the prose works of Dryden, which had lain scattered about, and published them in 1800. In 1808 he prepared for the press a few productions of his friend William Gerard Hamilton, with which he had been entrusted by his executors; and prefixed to this also a brief but elegant sketch of his life. When he was just on the point of going to the press with a new edition of his Shakspeare, he was interrupted by an illness, which proved fatal on the 25th of May, 1812, in the seventieth year of his age.

MALOUIN (Paul James), a French physician, born at Caen in 1701, was professor of medicine in the Royal College of Paris, physician to the queen, and a member of the Academy of Sciences of Paris, and fellow of the Royal Society of London. He strictly practised the preservative part of medicine, which is much more certain in its effects than the restorative. To this regimen he was indebted for a healthy old age and an easy death. He died at Paris of an apoplexy, 3d of January 1778, aged seventy-seven. By his will he left a legacy to the faculty, on condition of their holding a public meeting annually, and giving an account of his labors and discoveries. His principal works are, 1. *Traité de Chimie*, 1734, 12mo. 2. *Chimie Medicinale*, 2 vols. 12mo. 1755; a book full of curious observations. 3. Some of the Arts in the Collection published by the Academy of Sciences. 4. The Chemical articles in the *Encyclopædia*. He was a laborious chemist, and well informed for the age he lived in.

MALMESBURY (James Harris, earl of), K.B., was the son of the author of *Hermes*, see HARRIS; and born at Salisbury in 1746. He was educated at Merton College, Oxford, where he was created doctor of civil law, and in 1768 was sent as secretary of embassy to Madrid. He was afterwards minister at Brussels; and went envoy extraordinary to Berlin in 1772. In 1776 he was appointed to the same post at St. Petersburg; and in 1784 ambassador to the Hague. In this quality he signed the treaty with Prussia and Holland in 1794; and was next employed to negotiate the marriage of his present majesty, then prince of Wales, with the late unfortunate princess Caroline of Brunswick. In October, 1796, he became minister plenipotentiary to the French republic; but his mission in that character to Paris, and his negotiations at Lisle, were alike fruitless. He was, however, created earl of Malmesbury in 1800, and appointed governor of the Isle of Wight, and lord-lieutenant of Hampshire in 1807. His death took place in 1820. Lord Malmesbury was the author of *An Introduction to the History of the Dutch Republic*

tic; and a memoir of the life of his father, accompanying an edition of his works in 2 vols. 4to.

MALPIGHI (Marcellus), an eminent Italian physician and anatomist in the seventeenth century. He studied under Massari and Mariano. The duke of Tuscany invited him to Pisa, to be professor of physic. In this city he formed an intimate acquaintance with Borelli. He went back to Bologna, the air of Pisa not agreeing with him. Cardinal Antony Pignatelli, who had known him while he was legate at Bologna, being chosen pope in 1691, under the name of Innocent XII., immediately sent for him to Rome, and appointed him his physician. He died in 1694; and his works, with his life, written by himself, prefixed, were first collected and printed at London, in folio, in 1667. See **ANATOMY**.

MALPIGIIA, Barbadoes cherry, a genus of the trigynia order, and decandria class of plants; natural order twenty-third, trihilatæ: **CAL.** pentaphyllous, with melliferous pores on the outside at the base. There are five petals, roundish, and anguiculated: the berry unilocular, trispermous. There are many species, all shrubby evergreens of the warm parts of America, rising with branchy stems from eight or ten to fifteen or twenty feet high, ornamented with oval and lanceolate entire leaves, and large pentapetalous flowers, succeeded by red cherry-shaped, eatable berries, of an acid and palatable flavor. Three of these species are reared in our gardens, and make a fine variety in the stove. They retain their leaves all the year round; and begin to flower about the end of autumn, continuing in constant succession till the spring; after which they frequently produce and ripen their fruit, which equals the size of a small cherry. The flowers are of a pale red or purple color. These plants are propagated by seeds, which must be sown in spring, in pots of rich earth; then plunged into a hot-bed, and, when three or four inches high, put in separate small pots, watered and plunged in the bark-bed of the stove; where, after they have remained a year or two, they may be placed in any part of it. They may even be placed in the open air during a month or two of the hottest weather in summer: but must be carefully supplied with water during the whole year.

MALPLAQUET, a village of France, in the department of Gemappes, famous for a most bloody battle fought on the 11th of September, 1709, between the French under marshal Villars, and the allies under prince Eugene and the duke of Marlborough. The French army amounted to 120,000 men; and were posted behind the woods of La Marte and Tamiers, in the neighbourhood of Malplaquet. They had fortified their situation in such a manner with lines, hedges, and trees laid across, that they seemed to be quite inaccessible. In this situation they expected certain victory; and even the soldiers were so eager to engage, that they flung away the bread which had just been given them, though they had taken no sustenance for a whole day before. The allied army began the attack early in the morning, favored by a thick fog.

Their chief impression was made upon the left of the enemy; and with such success, that, notwithstanding their lines and barricadoes, the French were, in less than an hour, driven from their entrenchments. But on the right the combat was sustained with much greater obstinacy. The Dutch, who carried on the attack, drove them from their first line, but were repulsed from the second with great slaughter. The prince of Orange, who headed that attack, persisted in his efforts with incredible perseverance and intrepidity, though two horses had been killed under him, and the greater part of his officers slain and disabled. At last, however, the French were obliged to yield, Villars being dangerously wounded; but they made an excellent retreat under Boufflers, and took post near Guesnoy and Valenciennes.

MALT, *n. s. & r. n.* } Sax. *mealt*; Swed. *MALT'DRINK*, *n. s.* } *malt*; Belg. *mout*; Teut. *MALT'BUST*, *n. s.* } *maltz*. Grain steeped and dried in preparation for brewing. See **MALT'MAN**, **MALTING**.

MALTE-BRUN (Conrad), an industrious topographer and an active political writer, was born in the Danish province of Jutland, in 1775, and died at Paris, in the year 1826. He distinguished himself at an early age as a political partisan and pamphleteer; in 1796 he wrote against Feudality and the coalition of Sovereigns, and called his work the Catechism of Aristocrats: for this he was prosecuted and obliged to take refuge in Sweden. He is supposed to have originated a society called the *United Scandinavians*, whose object was to unite the three kingdoms of the north into one federative republic; for this he was sentenced to perpetual banishment, and in consequence determined to pass the remainder of his life in France. Here he assisted Martelle in his Political, Physical, and Mathematical Geography. In 1807, he published his Picture of Poland. His System of Universal Geography has established his reputation as an industrious compiler; and, although in many respects dissatisfactory, the division of kingdoms and countries being imperfectly given, yet he is not chargeable with the inconsistencies and errors introduced into the Index of the English translation.

MALTA, an important island of the Mediterranean, twelve leagues distant from Cape Passaro, in Sicily, the passage between being called the Channel of Malta. It is about twenty miles in length, by twelve broad; and is in long. 14° 12' E., and lat. 35° 50' N. An act of the British parliament has declared it to belong to Europe.

The base of the island is a white free stone, abounding in petrifications, fossil shells, and remains of enormous fishes; it is generally level, but with some hills. The soil is, in few spots, more than six inches deep, and has been in great part brought from Sicily. It is, however, exceedingly fruitful, producing corn for six months' consumption of its population, which, for its extent, is greater than that of any other part of the world, being, in 1798, 10,000 souls. The island has no river, but some good springs; and water is to be had by digging, but rain water preserved

in cisterns is most generally used. Besides corn and vines, the island produces a considerable quantity of cotton, and the finest oranges in the Mediterranean; together with a variety of other fruits, roots, and herbs in great profusion. The rocks washed by the sea afford abundance of the fucus proper for dyeing (*fucus venucosus tinctorius*). It has no venomous reptiles, which the inhabitants ascribe to the miraculous intervention of St. Paul, who, when he visited it, delivered it for ever from all animals of this kind! The west and north-west coasts are bounded by perpendicular precipices, forming a natural fortification. The climate is healthy, though very warm. Malta or Moleta is a small place in the middle of the island.

Malta was given, by the emperor Charles V., to the knights of St. John of Jerusalem, when driven out of Rhodes by the Turks in 1530. They were required to be of noble birth by both parents for four generations, and were under vows of celibacy and perpetual war with the infidels. The grand master was elected for life, and possessed the attributes of a sovereign prince. They were divided into eight langues, or tongues, of which three were French, two Spanish, one Italian, one German, and originally one English; but, on the Reformation, succeeded by the Anglo-Bavarian. The number of knights was unlimited: the badge of the order, a white cross of eight points, worn on the left side. The gradual relaxation of the discipline of the order paved the way for its downfall; luxury succeeded to the noble simplicity of warriors, and the effeminacy of cities to the hardihood of camps. The war with the Turks had long been reduced to a phantom, and the summer cruises of their galleys had become parties of pleasure. These vessels were at last profusely ornamented with carved work and gilding; the sails striped blue and white, with a large red cross on each. Some of them carried 800 men. The defence of this vast fortress was entrusted to foreign mercenaries; and the energy of union, on which the renown of the order had been founded, being extinguished, the French found it easy to corrupt the chiefs, and, in 1798, made an almost unresisted conquest of the island. After a two years' blockade it capitulated to the English. By the treaty of Amiens it was stipulated, that the island should be restored to the knights under the guarantee of Russia: and the non-compliance with this stipulation by the English was the ostensible cause of France commencing hostilities in 1803. Some abortive projects for reviving it have been since agitated.

The Maltese are partly of Arabic origin, and speak that language mixed with Italian. They are described as generally temperate, industrious, and brave, but also vindictive and jealous of their wives, who, by a natural re-action, seek and find not unfrequent opportunities to be unfaithful.

The ancient capital, named Citta Notabile, or the city of nobles, but more commonly Citta Vecchia, or the old city, is situated on the highest point and nearly in the centre of the island. The modern capital is La Valetta, so named from the grand master its founder, and has about 30,000 inhabitants. It is near the middle of

the north-east side, and built on several rocky points projecting into five of the finest harbours in the world: the entrance, which is not a quarter of a mile broad, is defended by immense fortifications, as is the town, so that the whole island may be considered as an impregnable fortress, to be reduced only by famine.

The other principal landing places are Melcha Bay; St. Paul's Bay, sheltered by the group of Solomon's Island, with a depth of two to six fathoms; old and new Salt Ports; Port St. Mau: all on the north. Port Magdalen, Marza Scala, and Port St. Thomas, on the north-east. Marza Scirocco, on the south-east, is a bay divided into two branches by a projecting point. In the east branch the depth is eight fathoms, and in the west twenty-two fathoms. The whole island contains about 70,000 inhabitants. Gozo (Galus or Guadus) is five miles north-west of Malta. It, as well as Malta, has considerable manufactures of cotton. In the channel between Malta and Gozo are the little islands Cumino (Heppestia) and Cuminotta: the passage between them and Malta is called the Strait of Friuli. The islands of Lampedosa (Lipadusa) and Lam-pion belong to Malta, between which and the coast of Africa they are situated.

This island was anciently called Melita; and is supposed by Cluverius, from its situation and other particulars, to be either Ogygia, or Hyperia, mentioned by Homer, which last is most probable, as the poet places the mountain Melita in that island. See *HYPERIA*. The most ancient possessors of Malta, of whom we have any certain account, were the Carthaginians; from whom it was taken by the Romans: and yet, during the whole time that it continued under the power of these nations, it was almost entirely barren. Its chief products were figs, melons, honey, cotton, and some few other fruits and commodities, which the inhabitants exchanged for corn. It labored also under great scarcity of water and fuel. According to an ancient tradition, Malta was first possessed by an African prince named Battus, an enemy to queen Dido, from whom it was taken by the Carthaginians, as may be inferred from several Punic inscriptions to be seen on stone pillars and other monuments yet standing. The Arabs seized it in 828; and were driven out of it in their turn by Roger the Norman, earl of Sicily, who took possession of it in 1190; from which time it continued under the dominion of the Sicilian princes till the time of Charles V., when it fell under his power, along with Naples and Sicily.

The knights of Rhodes, afterwards of Malta, originated from a religious military order, called Hospitaliers of St. John of Jerusalem. Some time before the journey of Godfrey of Bouillon into the Holy Land, some Neapolitan merchants, who traded to the Levant, obtained leave of the caliph of Egypt to build a house for those of their nation who came thither on pilgrimage, upon paying an annual tribute. Afterwards they built two churches, and received the pilgrims with great zeal and charity. This example being followed by others, they founded a church in honor of St. John, and an hospital for the sick; whence they took the name of hospitaliers. A

little after Godfrey had taken Jerusalem, in 1099, they began to be distinguished by black habits and a cross with eight points; and, besides the ordinary vows, they took another, to defend the pilgrims against the insults of the infidels. This foundation was completed in 1104, in the reign of Baldwin; and so their order became military. Many persons of quality entered into it, and changed their name of hospitaliers into that of knights. When Jerusalem was taken, and the Christians lost their power in the east, the knights retired to Acre or Ptolemais, which they defended valiantly in 1290. Then they followed the king of Cyprus, who gave them Limission in his dominions, where they staid till 1310. That same year they took Rhodes, under the grand master Poulques de Villaret, a Frenchman; and next year defended it against an army of Saracens: since which the grand masters have used these four letters, F. E. R. T. i. e. *Fortitudo ejus Rhodum tenuit*; and the order was thence called knights of Rhodes. In 1522, Soliman II. having taken Rhodes, the knights retired into Candia, and thence into Sicily.

In 1530, being destitute of a home, they accepted the offer made them by Charles V. of the island of Malta; which they took possession of on the 26th October. At this time neither Villiers, the grand master, nor the knights his companions, had any intention of making this island the place of their residence. But having made an attempt on Modon, a rich and populous town of the Morea, which was attended with no other success than the acquisition of considerable plunder, and the capture of 800 women, they considered the issue of their enterprise as an indication of the will of heaven, and set about fortifying Malta as their future abode. After this the first expedition they engaged in was against the Turks, in 1532 and 1533, under the celebrated Andrew Doria; when they took Coran. In 1534 the grand master Villiers died, and Perino de Ponte, a native of Ast in Italy, was elected his successor. About this time the successes of the pirate Barbarossa, in Africa, had given just cause of alarm. The new grand master, therefore, sent an embassy to the emperor Charles V., which, with another from Muley Hassen the deposed king of Tunis, easily prevailed upon him to carry his arms into Africa. A great number of the bravest knights embarked, with eighteen brigantines of different sizes, four of the best Maltese galleys, and their vessel called the great carrack. In this expedition the knights distinguished themselves in an eminent manner. At the siege of Goletta, after having made a breach by their cannon in the great tower, they jumped out of the galleys into their long boats, and thence into the sea sword in hand, marched with the greatest resolution through a galling fire, and showers of all kinds of missile weapons; and, having gained the shore, quickly ascended the breach, on the top of which they planted their great standard. The emperor declared that the taking of Goletta was chiefly owing to their valor. The city of Tunis soon after surrendered; whereupon the emperor, desirous to return to Europe, took his last dinner on board the great carrack. They were now

allowed to import corn and other provisions from Sicily, without paying duty; and the emperor engaged that none of the order should enjoy any of the estates or revenues due to the Maltese knights throughout his dominions, unless they were lawfully authorised by the grand master and his council. Mean time the grand master died, and was succeeded by Didier de Tolon de St. Jalle, a native of Provence, then grand prior of Thoulouse, a man of great conduct and bravery, which he had shown at the siege of Rhodes. During his mastership the knights assisted Botigella, prior of Persia, in repulsing the Turkish corsairs, who had attempted, under Hayradin, lord of Tagiora, the brother of Barbarossa, to take Tripoli. They afterwards raised the strong tower of Alcaid; captured Adabus; on their way back took a rich Turkish galley, worth 160,000 crowns; and landed in triumph, loaded with plunder. Soon after this John de Homedes became grand master. The Maltese still continued to behave with their usual valor against the Turks; but, through the negligence of Charles V., almost all the places held by the Christians on the African coast were reduced by the infidels, and the valor exerted by the Maltese served only to destroy great numbers of them. At last the emperor's affairs in Africa were totally ruined by his unsuccessful expedition against Algiers: but to the last the Maltese knights behaved with great intrepidity. The Maltese commander, with the remains of his knights, arrived in three shattered vessels at the port of Malta, about the end of November 1548. The island was, during this expedition, terribly annoyed by Turkish and other corsairs: but they soon avenged themselves, and their admiral Simeoni sent home a great number of the corsair captains in chains. Having learned that great preparations were made by the Turks at Tachora for the siege of Tripoli, they applied to the emperor to cause the fortifications of Tripoli to be repaired; till at last Soliman resolved to expel the knights from Malta, as he had before done from Rhodes.

La Valette, the grand master, being apprised of Soliman's designs, ordered every member of the order to repair to Malta, which they did to the amount of 600, attended by retinues of servants that were excellent soldiers, and a body of above 2000 foot from Italy. Those whom age or sickness prevented from attending personally, sold their most valuable effects, to assist in the defence of the island; and Don Garcia, viceroy of Sicily, was ordered by the king of Spain to have 20,000 men ready to co-operate with the Maltese. On the 18th of May, 1565, the Ottoman fleet appeared, consisting of 159 large galleys, and carrying above 30,000 effective men, besides slaves, under Mustapha Basha, an experienced but cruel commander. This formidable force landed near St. Borgo, and ravaged all the neighbouring country with fire and sword, but met with a check from de Copier, marshal of the order, who, falling unexpectedly on detached parties, cut off 1500 Turks with the loss of only eighty men. Meantime Mustapha, dreading the arrival of the Spanish reinforcement, and desirous to get possession of a harbour where his troops could place themselves in a better posture of do-

fence, attacked the port of St. Elme. The garrison was soon reduced to such extremity, that the knights sent to the grand master for permission to evacuate the place. To this he would by no means consent, but sent them every night fresh supplies of men and ammunition. The Turks, however, whose numbers were increased by the arrival of twenty galleys with above 2500 troops on board, raised new batteries in the most advantageous situations, and kept up a continual fire on the fort. The besieged, on the other hand, had their courage renewed and excited to the highest pitch, by the arrival of numerous volunteers from the town, under Constantine Castriot, a Greek prince, descended from the celebrated Scanderbeg. The master also supplied them with a new kind of fire-works, called burning-hoops, which, when set on fire and thrown among the besiegers, did dreadful execution. In spite of these new and dreadful engines of destruction, however, the Turks cast a bridge over the ditch, and began to undermine the wall. From the 17th of June to the 14th of July, not a day passed without some rencounter, but the Turks were repeatedly repulsed. At length Mustapha adopted the desperate measure of extending his trenches and batteries on the side next the town, though he thus exposed his troops to the double fire of St. Elme and St. Angelo; he succeeded, however, in his great object of cutting off all communication between the fort and the town. On the 21st he made four different assaults, but was as often repulsed by the valor of the knights; at last, on the 23d, he took the fort, though not till every man of the garrison had perished at his post. The few sick and wounded who remained were barbarously massacred by the inhuman victor, who caused them to be ript up alive, their hearts torn out, and, as an insult to their religion, their bodies were gashed in the form of crosses. In retaliation for this barbarity, La Valette massacred his Turkish prisoners, and, putting their heads into his largest cannon, shot them into the Turkish camp. In this siege the order lost about 1500 men, including 130 of the bravest knights; but

the loss of the Turks was incalculable. Mustapha, however, being reinforced by Hassem, the son of Barbarossa, with 2500 select soldiers called the braves of Algiers, resolved to attack Fort St. Angelo, and entrusted the assault of Fort St. Michael to Hassem, and his lieutenant Candelissa, an old corsair, who attacked it by sea, while Hassem made an assault by land. But the knights defended the fort with such determined resolution, that, although equal valor was displayed by the Turks, the latter were every where repulsed with immense slaughter, so that of 4000 men scarcely 500 remained. Nor was Mustapha himself more successful in the siege of St. Angelo, although at one period a majority of the knights were of opinion, that the town was not tenable. This, however, was denied by La Valette, to whose determined courage and resolution (though in his seventy-first year), the preservation of the town and island was owing. At this crisis, Don Garcia sent over a body of Spaniards, on the report of whose arrival the Turks immediately raised the siege and embarked. Learning, however, after going on board, that the number of the Spaniards was only 6000, they again disembarked, and gave them battle; but were driven to their ships with the loss of 2000 men. Such, after four months' continuance, was the conclusion of the siege of Malta, which will be for ever memorable as a display of the most heroic valor on the part of the knights; by which, though so few in number, they were enabled to baffle the most vigorous efforts of one of the most powerful monarchs in the world. Congratulations were sent them from every part of Christendom; and in many states public rejoicings were celebrated on account of their success. We have already adverted to the modern history and the dissolution of the order.

MALTIM. The mineral tallow of Kirwan, said to have been found on the coast of Finland. It resembles wax. Its specific gravity is 0.77. It is white, brittle, stains paper like oil, melts with a moderate heat, and burns with a blue flame and much smoke. It dissolves readily in oil, and imperfectly in hot alcohol.

M A L T I N G.

MALTING, as a commercial pursuit, may be considered as an artificial mode of inducing vegetation in certain grains, terminated by exposure to the heat of a drying kiln. The grain most commonly malted is some species of *hordeum*, or barley.

We know of no pursuit, of equal commercial and financial importance, to which so little of scientific attention has been directed. Yielding the largest revenue of all our internal imposts to government, it is unfortunately fettered by those legal restrictions which debar all experiment and improvement, and are calculated, as has been plainly seen of late, to diminish the consumption of malt liquor: while its connexion with the fluctuations consequent on the wretched system of our corn laws, renders any steady reliance on a commercial profit in this trade impossible. We look, however, to the liberality of the legis-

lature for speedy and important alterations in both respects.

The best malts are required for the brewing of fine, pale ale, the strength of which will not permit a deterioration of the grain on the floor, nor the color an exposure to excessive or ill-managed heat on the drying kiln. The writer of this article had the happiness of a long personal acquaintance with the managing maltster and brewer of a considerable ale establishment of this kind; and to the practical observations derived from this source, connected with his personal attention to malting for some years, the present paper principally owes its origin.

It were a fruitless endeavour to attempt to define the various changes induced by the living process of *germination*, seeing that they differ essentially from those changes which are produced by chemical affinities on inanimate sub-

stances. The seed possesses, in embryo, all the characteristics of the perfect plant: and that food which nature has provided for its nourishment and sustentation is, by a peculiar attraction and decomposition, under the salutary influence of a proper temperature, ingrafted into the very nature, and forms a part of the seed itself. If due supplies of nourishment be withheld, at proper intervals, the plant becomes languid; disease and death ensue of course. No person would attempt to explain what that power is, which enables a vegetable to produce these changes; such a power however there is.—It may be said to bear some resemblance to the vital power of living animals, by which their food is converted into chyle, and that chyle into blood; which gives out many secretions containing compounds by no means to be obtained from the aliment they receive, or by any other agency, even when the air which they breathe is also taken into the account.

The boldest barley with a full skin is always to be preferred for malting; and weight is a more certain test of the value of barley than of malt. Barley being in its simple unaltered state, it may fairly be admitted that the heaviest is the best. That which is bold, of a fine skin, and perfectly dry, will necessarily be heavier than in those instances where any of these properties are deficient. The counties of Nottingham, York, and Lincoln, produce barleys of a quality equal to any in the kingdom; but Kent, Essex, Norfolk, and Suffolk, principally supply the London market.

Maltsters and brewers generally concur in opinion that barley from light land is the best in quality. However on this circumstance our sentiments are different; though it must be allowed there is scarcely any general rule without some exception; but the reverse is the fact; particularly under the genial influence of a fruitful season, and a dry harvest. Small enclosed fields and the high management of arable land, so generally introduced into the practice of husbandry of late years, have greatly contributed to deprive us of those bold barleys which were the produce of the open fields. There is however a difference which deserves attention between the barleys that are thin from a luxuriant crop, by the forcing influence of rich manure liberally administered, and the barleys that are slender from the impoverishing effects of a light sandy soil, as is the case with a great part of the Norfolk barley; or from a poor unkind clay soil, which may be found in some particular parts of the northern counties. Farmers in general prefer the seed for their future crops more on account of its 'clearness' than from a regard to its boldness.

There is an essential difference between lean barley from an enriched soil, and barley which is thin from its natural type; and as the future crop must necessarily partake of the features and properties of the seed, all the properties of the seed should be duly appreciated. However it is manifest that the boldest seed will endure the greatest vicissitude, and will more generally insure a productive crop to the farmer than barley of a meagre cast, especially if its impoverished shape be the result of a natural conformation.

It may now be considered under the

successive processes of steeping, couching, floor management, and drying.

I. OF STEEPING THE BARLEY.—It must be granted, that the boldest and heaviest barleys will require more water in the cistern, a greater length of time to meliorate them in the process of malting, and an additional supply of water by sprinkling, to bring them to the greatest perfection. Were the quick growing barleys of Hertfordshire and of the other southern counties to be immersed in water sixty hours, the time necessary for the stouter barleys of Lincolnshire, Nottinghamshire, and Yorkshire, it would greatly deteriorate their quality. On the contrary were the maltsters in those northern counties to conduct the malting process without sprinkling, when the barleys were injured in the field, their malt would be little better than a heap of putrid vegetables. It may clearly be deduced, from the varieties of barleys, arising from different management of the lands—from the variation of the soils—and from different climates, as well as from the great difference with respect to the condition of the grain at the time of steeping, that no particular period can be limited for its being immersed in water. Yet the legislature directs that barley shall not be steeped less than forty hours; although it might be shown that this time is by no means sufficient to secure the duty which it ought to pay to the revenue. Good barley, which has been well harvested, continues to rise in the cistern at least sixty hours; and, as the duty is charged from the greatest gauge, the maltsters who steep their barley but forty hours will not pay so much as those who steep it sixty. Those maltsters who consider the profits of their trade as the principal object of their pursuit, rather than the quality of their malt, will avail themselves of this advantage; hence the revenue suffers, the public are deceived, and the fair trader is deprived of the opportunity of vending his manufacture.

When barley has been gathered too hastily, before it was sufficiently dry (either with rain or dew upon it), it has been found necessary to expose it a short time to a very gentle heat upon the kiln; this will dispel that morbid moisture which benumbs the vegetative principle, and prevents the barley from absorbing its necessary portion of fresh water in the cistern; but it is a very delicate operation, and the purchaser of barley for malting should avoid this kind of grain.

It was formerly a custom with maltsters to examine their barley during the time of steeping; and when, on pressing the two ends of the grain between the finger and thumb, the skin separated from the kernel, they judged it had been sufficiently steeped. But since the law regulating the time of the day for steeping has been enacted, this test has gradually fallen into disuse; and maltsters are now more governed by the act of parliament in steeping it the shortest time possible which the law permits. The reason is very obvious: the malt thus made will evidently pay less duty; but it certainly cannot be so good.

For making perfect malt it is necessary that the barley should be completely saturated with water in the cistern. The water absorbed there

by the pores of the skin is destined for the formation of the root. If the barley come short of a complete saturation, the injury can never be repaired; because no water administered on the floor, particularly before the root is formed to attract it, can be equally distributed—some of the grains will get too much, and others will come short of their proper portion. Indeed to sprinkle water upon the grain before the root is completely formed is a most pernicious practice. But unless the barley be steeped its proper time the assistance of sprinkling must be resorted to, or it would get too dry; and, under such precarious management, the roots at best will be extremely irregular and imperfectly formed.

New barley requires to be steeped longer than old; and many maltsters were formerly in the habit of changing the water once or twice during the steeping, but here again the legislature interferes; the maltster is obliged to give notice when he will 'change liquor,' as it is called, and is only ordinarily suffered to do it once. While in the steep-cistern the exciseman repeatedly gauges the grain.

In this stage of the process, a considerable quantity of carbonic acid is evolved. 'If the steep-water be mixed with lime-water,' says Dr. Thomson, 'the whole becomes milky, and carbonate of lime is deposited. If the steep-water be agitated, it froths on the surface like ale. If it be heated, it gives out carbonic acid gas, which may be collected over mercury. In general, there is reason to believe, that nearly all the carbonic acid evolved in the steep remains in solution in the water, or at least is extricated from the water in an imperceptible manner. From the observations of Saussure, it seems probable, that the formation of carbonic acid in the steep is owing to the oxygen gas held in solution by the steep-water.'

II. OF THE COUCHING.—This is but a transitory and comparatively unimportant stage of the process; except that, in England, the average gauges of the couch have, until lately, furnished the data upon which the malt duty has been charged. The couch is a rectangular frame, generally made of moveable boards, erected edge-wise round a certain portion of the malt-floor near the cistern. Here the grain is thrown and levelled, remaining in this stage about twenty-six hours. Dr. Thomson says, the duty is seldom levied for the couch gauge. We suppose he means in Scotland.

III. OF THE FLOOR MANAGEMENT.—When the barley has remained its appointed time in the frame it is turned out, and is then called a floor. The skill of the maltster is now most loudly called for. On his management the formation of the root depends, and to the formation of a perfect root all the future perfections of the malt are indebted. In this moist state, were the barley heaped too thick, or were it to remain unturned too long, an undue heat would be generated, which would cause the radicle, or root, suddenly to send forth long and weak shoots, or filaments, and the work would be injured. The heat of the young pieces upon the floors should never exceed 45° by Fahrenheit's scale.

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Some maltsters keep their young floors thick to retain the moisture about, instead of this, were they permitted to have the advantage of a renewal of water, when that which was absorbed in the cistern was expended, there would be no necessity to pursue such a measure; which evidently tends to the deterioration of the malt in the most critical period of its growth.

Premising that the barley has been duly steeped, the working maltster will find it necessary gradually to spread his young pieces thin, and to turn them very frequently, never less than three times in the course of the day; in warm weather, or when the root shows a prompt disposition to send forth its filaments, they will require turning more frequently. In some parts of the kingdom the maltsters make use of a piece of wood of a particular form (by them called a plough), which they run along the floors, to stir them up, as a substitute for turning. In the older pieces, when the roots are most apt to entwine round each other, this practice is very defective; to the young pieces it can only be of little use. The plough is but a temptation for the working maltster to neglect the turning of his floors; by which alone the form of the root can be duly preserved, the proper degree of heat be retained, and the process of germination, for the obtaining the most valuable properties of the malt, can be conducted to perfection.

Some object to the production of a large root, contending that it exhausts the grain. However, if the root be diminutive, it is a certain proof that the barley has not had sufficient moisture. The form of the root, more than either the weight or dimensions, should engage our attention. A short and bushy radicle, which sends out many fibres, is the only root from which good and tender malt can be made. But if at any time the young piece acquires too much heat, the shoots will be long and weak. The roots of barley in the field do not receive their nourishment from any considerable depth in the earth; but from the moisture near to the surface: therefore their most perfect form, as just described, is best suited to their situation: the more numerous, short, and strong, are the filaments, the greater portion of pabulum will they impart to the plumula.

If malting be an imitation of the process of germination while the grain remains in the earth, and if new accessions of moisture be not needful after the root is formed, then the moisture of the ground (whence the root is extracting constant supplies of nourishment) is certainly injurious.

Under the salutary influence of the mimic shower of the watering pan, the powers of vegetation, when they begin to languish from the expenditure of its absorbed moisture in the cistern, would now perform important functions. But here excise philosophy forbids the further conformity to nature; and, destitute of moisture, the roots become of no use.

It is important to remark, that the generation or accumulation of heat during the malting process, as in fermentation, should be gradual. The greatest heat of the youngest piece, as we have already observed, should not exceed 45°. If early watering were permitted, a greater exposure

to the air, and a lower heat, would be preferable. The heat of the oldest piece ought not to exceed 50°.

The smell of the grain, as well as the appearance of the floors, will always indicate to the experienced maltster when his malts ought to be turned. When they are closely bedded together, the application of the shovel is indispensable. The floors should be turned even, which can only be performed by the peculiar art of a dexterous maltster, by which the malt is spread like the drops of rain from a descending shower. Thus opened, and exposed to the atmospheric air, the floors will be light; and the air, as well as the water, will perform its important office in the work assigned to it. A continued retention of moisture would be pernicious to the malt. When, therefore, a supply is administered, sufficient to furnish the imperative demands of every part of the floor, the malt should be frequently turned; and it should be spread and laid so light in the act of turning, that the air may co-operate with the water, in order that the germination may be perfect, and the malt be complete.

When the newly steeped barley smells sour, as it frequently does in the spring, the process of germination will soon convert the unsavory acid into an agreeable smell. But when the older floors begin to smell unpleasantly, and the odor of youthful effusions is gone, it is evident a recruit of water is necessary. The unpleasant smell is occasioned by the emission of hydrogen, which can only be retained by the judicious renewal of those principles which water, in combination with the atmospheric air, yields to the organic plant.

It is evident to all who understand the process of malting, and give it that attention which is necessary to the attainment of perfection in the operation, that the uninterrupted influence of water and air is absolutely necessary throughout the whole process.

The charge of forcing is strongly urged against the sprinkling system, to prove that it is pernicious. But the mere sound of words must not assume the province of fair and liberal discussion. If by the act of forcing, the application of heat, above the medium prescribed by the laws of nature, as best adapted to organic life, be the thing intended—then, a greater heat must necessarily be excited when water is withheld than when it is applied to the floors. If hastening the process by an improper excitement of heat under the powerful co-operation of water, by which the exciting power is more rapid in its effects, such a practice would be highly injurious. But if it be asserted that the sprinkling is a forcing system, merely because the interior of the grain is thereby more speedily malted, we deny the position. The fact is, if air, heat, and light, be freely admitted, and a due proportion be preserved of the native and combined influences of water, of heat (light may be admitted, but it cannot be influenced), and of the atmospheric air, the process of germination, and the gradual, but progressive and uninterrupted, growth of the acrospire must necessarily ensue. But if water be denied, which is its principal food, the growth of the acrospire

will cease—the unmalted part of the grain can then be made friable only by excessive heat (which certainly is forcing), the process is rendered more tedious, and the acrospire is despoiled of the treasure it had reserved for the most essential purposes of the brewing process. That the collision or operation of more principles than one, in their decomposition by the vital action, is the efficient cause, by which the interior of the grain is converted into a compound saccharum, is abundantly evident.

It may here also be remarked that the supposed danger of extending the acrospire of small barley to the end, must arise from the difficulty of preserving an equal vegetation in such grain; for so long as the blade remains within the husk, whether the grain be large or small, the farther it extends, and the bolder it is, so much more will the malt be nourished.

It has been intimated that the heat acquired by germination, in the making of malt, should be progressive. If at any time the floors get too warm, the operation may be impeded by a sudden exposure to the air; but notwithstanding the utmost efforts of the manufacturer, and all the management of which he is capable, the malt will be unkind or flinty. The maltsters of the old school may perhaps feel displeased to find that their favorite practice is discontinued; but yet faithfulness demands of us to bear a testimony against the system of withering malt on the floor: and especially against the still more pernicious practice of heaping it, before it is removed to the drying kiln. Both these practices were adopted for the purpose of making malt tender; and that it might 'brew dead in the tub.'

To the subject of tenderness, as a perfection in malt, we have paid particular attention; that those modes might be hereafter disused which are adopted in the malting office, to the evident injury of the article. It has been remarked that, for the benefit of the brewer, water ought to be administered sufficiently to answer the demand of the languishing seed, after the root is formed. We are not advising a departure from the existing, though galling, restrictions of the legislature, but we here write in the hope of these restrictions being in due time removed. In that case, the method of supplying the malt with water, that it may be as regularly saturated as possible, will become a subject of no inferior consideration. The roots, possessing a powerful attraction for moisture (the natural food of the plant), will readily combine with it, and by this mean it will prevent its settling to the bottom of the floor. But when it is understood that as much as three quarts of water ought to be administered, by the watering pan, to every bushel of the bold barleys of the midland and northern counties, particular care should be taken that every part of the malt may receive an equal supply. In order that the water be equally distributed, one-half of the quantity intended to be sprinkled should first be applied; after which, the malt being turned over, it will be ready for the remainder; and, that it may be well opened, another immediate turning will be necessary. It will then fall and continue light on the floor, giving the roots every possible opportunity of absorbing a needful supply. This

operation ought always to be performed early in the morning in the first place; and then in a little time (suppose immediately after breakfast) it will again be necessary to turn the newly watered malt. In mild weather it will require to be turned three or four times in the course of the first day of watering; and in cold weather still oftener, because the disposition of the roots to attract the water is weakened; and consequently without more frequent turning it would subside, and injure the malt by an unequal operation. Hence it must necessarily be inferred, that when the malt is fully saturated with water, on being removed from the cistern, or when it has been replenished with the watering pan, close attention and frequent turnings are indispensable.

It is impossible to accelerate the progress of the floors, further than the gradual operations of nature will admit, without manifest injury to the malt. By keeping the floors immoderately thick, too much heat is generated; and to apply a profusion of water by way of correcting the error, must certainly be very injudicious. If due attention is not paid in regularly turning the floors, when necessary, the malt of course cannot be so good. When the floors are of a proper thickness, and well managed by regularly turning, a judicious maltster will know the necessity of sprinkling with propriety. Where the sprinkling system is practised great attention is necessary; where it is not practised the malt is unavoidably injured; because without sprinkling the barley cannot be rendered friable or floury.

Some maltsters prefer sparing and frequent sprinklings. Perhaps this method might be less dangerous, and equally beneficial, were we permitted to sprinkle after the sixth or seventh day. Malt from the stoutest barleys might, by such early application of water, when the roots are completely formed, be matured in about fourteen days, without the smallest degree of forcing; and the blade by that time would be bold and completely worked up. From the sixth, there would be eight complete days: in three of which sprinkling might be occasionally repeated. In the other five days, the moisture would be sufficiently expended for the malt to be exposed to a gentle fire upon the drying kiln. But, as the law now stands, the maltster must make the best use of his time. When the malt has been deprived of water for nine days, there is considerable difficulty in keeping the whole alive. An immediate and equal application of water is indispensable to renovate the drooping powers of vitality, that time may be gained to prepare the malt for the fire of the kiln.

Some maltsters who dislike the system of watering upon the floors (for want of knowing better) contend, that by a contrary practice they actually preserve the principle of vitality in full perfection, until their malt is sufficiently tender for drying. But, when mere assertions contradict the unequivocal testimony of the operation of the laws of nature, we need not seek for any farther proof of their futility. Further, some maltsters from prejudice and ignorance confidently assert, that if they were to sprinkle their malt, it would turn mouldy. Now the very acknowledged

ment that their malt turns mouldy from the application of water, is a direct proof that vegetation had ceased previously to the mould taking place; and that the putrefactive process had actually commenced. It is truly wonderful that such a manifest error should exist in this age of general enquiry and information.

There is no doubt but that much injury may be done by sprinkling, without considerable attention and judgment. If, from an avaricious principle, maltsters do not supply their barley in the cisterns with a sufficient quantity of water, but instead of it an early and profuse application on the floors, by the watering pan, is substituted for that purpose, the consequence is evident: the malt must be materially injured. But the advantages that may be derived from the use of water in the making of malt, administered at proper times, are not to be lightly estimated. By sprinkling it acquires an increase of bulk of one in ten; and, with this increase, it also treasures up a valuable portion of the inflammable principle. The malt being thus swelled by absorption will produce as much saccharine matter per quarter, ascertained by the instrument, as malt that has not been sprinkled; although the weight of the latter per bushel is considerably more. Therefore, if we only calculate by mere weight and measure, one quarter of barley in ten is lost to the community, in all instances, when the Hertfordshire system of making malt is adopted.

Will not the brewer, who makes his own malt, likewise reflect that he can procure eighty-eight pounds of fermentable matter from a quarter of malt (ascertained by Mr. Richardson's instrument) while he could only gain eighty pounds were he not to adopt the sprinkling system?

The brewer who buys his malt, when he finds that he can save 8s. per quarter, and the sprinkled malt will yield him as much saccharine matter, of a sweeter, richer, and vastly superior flavor; he will, of course, by all the saving in the price of the malt, be enabled to bring his liquor cheaper to market.

A gentleman, in his evidence before the committee of the house of commons said, that the pale malts he brewed produced eighty-four pounds of fermentable matter per quarter: but when he was requested to inform them of the mode by which his worts were weighed, he answered, 'by Quin's instrument.' It appeared, from a further enquiry, that Quin's hydrometer varies from Mr. Richardson's as much as five per cent. and that in fact, the eighty-four pounds of extracted fermentable matter, were but eighty. To reconcile such apparent disparity with respect to the weight of the worts by different instruments, is by no means the object of the present work. Those who are solicitous for more copious information must enquire for themselves.

Competition between different persons produces a kind of necessity to abandon many customs, which had obtained a sort of privilege, from those prejudices which have been adopted from our ancestors. It is from prejudice contracted in this way, that maltsters and brewers long retain their provincial habits: hence the innum-

able methods of making malt, and brewing malt liquor, which of course give occasion to an equal variety of the qualities and flavors of those respective manufactures, which are to be found in different parts of the kingdom. But it is the united province of natural philosophy and of chemistry to rescue the manufacture of these valuable productions from the hands of fastidious ignorance, and to establish certain rules, founded upon rational principles, for the uniform attainment of that perfection in the art, which the subject will admit. This question therefore ought to undergo an immediate and a thorough investigation, by unprejudiced and intelligent minds.

When we consider the health of individuals in this populous country, together with the best use that might be made of the produce of so great a part of the land, which the growth of barley necessarily requires; and further, when we contemplate, that a most important branch of the public revenue is also immediately connected with the art of making malt and brewing malt liquor, surely these are considerations not unworthy the attention of the legislature.

If one uniform method were established, for conducting the process of germination in making malt according to the sprinkling system, we may venture to affirm, that the article might be brought to market eight shillings a quarter lower, and likewise of a superior quality to malt made by a contrary process: consequently it would be a saving to the public of so much money. It would be a means of easing the burden of the present heavy, though necessary tax on malt; and, to descend lower in the scale of public utility, the individual consumer would also obtain his share of those advantages already enumerated, particularly in having his malt liquor cheaper, and of a better quality by one penny per gallon (or nearly so) and in many instances by twopence. Ale brewed from malt manufactured according to the sprinkling system (judiciously managed) is more nutritious and invigorating, in consequence of its abounding more with the inflammable principle, or ardent spirit; which is an essential constituent in brewing ale of a prime quality.

Vegetation is the first agent employed, in separating the inflammable principle from its mixed and neutral combination with the other elements; and which necessarily constitutes so valuable a part of those liquors which are designed to renovate the vital powers of man. By fermentation, the decomposition is rendered as perfect as the efforts of art can perform.

The following practical observations on this part of the subject occur in the able Report of Drs. Thomson, Hope, and Coventry, to the Excise Board of Scotland:—

While the malt is on the floor, a variety of interesting changes happen. 1. The grain, at a certain period, becomes moist and exhales at the same time an agreeable odor. 2. Soon after this period the roots begin to make their appearance. 3. The plumula, future stem, or acrospire, begins to swell, and gradually advances under the husk from the same end of the seed where the roots are observed to spring, till it reaches the other extremity. 4. The kernel becomes

dryer, friable, opaque, white, and sweet-tasted. 5. Each grain of corn loses a certain portion of its weight. The whole secret of malting depends upon the proper regulations of these changes. This is done chiefly by, 6. Keeping the temperature as equal as possible; which again depends on 7. The time and number of the turnings. It will be necessary to take a short view of each of these particulars, in order to form precise notions of the nature of malting.

1. After the grain has been cast out of the steep, and put into the couch, it gradually becomes dry externally, the moisture that adhered being either dissipated or absorbed. The temperature in the mean time gradually rises, and in about ninety-six hours will usually be found to have increased about 10°. This rise of temperature in the heat depends in some measure on the state of the atmosphere. If the air has become colder since the period of casting, the malt does not become so warm as it would otherwise do; while, on the other hand, if the air has become milder, the temperature of the malt experiences a corresponding increase: 10° may be stated as nearly the medium of the different experiments. The smallest rise observed was 5°, the greatest 18°; the most common from 8° to 12°. It must be observed, however, that the rise of temperature depends greatly upon the choice of the maltster, who can check it at pleasure, by turning over the grain, and spreading it thinner upon the floor.

About ninety-six hours after casting, the grain which had become seemingly quite dry on the surface of the husks, turns again so moist, that it will wet the hand if we thrust it into the malt-ing heap. The appearance of this moisture, which happens regularly after the malt has been some days on the floor, is called sweating by the maltsters: it continues for one day or two, and then disappears. During its continuance a pretty strong odor is exhaled, rather agreeable, and not unlike that of apples. If at this period a portion of the malt be distilled, in a steam bath, a little spirits will be found in the liquid which comes over. They may be made more apparent by mixing this liquid with sulphuric acid, and distilling a second time.

Unless the malt be turned pretty frequently, as soon as the sweating comes on, the temperature increases with great rapidity. In one case, the turning was omitted for about fourteen hours, and the temperature was observed as high as 80°.

It is just about the time of the sweating that the roots begin to make their appearance; each, at first, like a small white prominence at the bottom of the seed, which soon divides itself into three rootlets, and at last into four, five, or even seven. These roots are, at first, very soft and tender; but in a few days they begin to wither and to acquire hardness. Many of them are broken off during the turning of the malt, and, in that case, new roots generally succeed them, at least in the earliest stages of the process of malting. When the radicles have divided themselves into three roots, and have acquired some length (which usually happens in one, two, or three days after their appearance, according to

circumstances), the apple-like smell goes off, and is succeeded by another not unlike that of the common rush, when, newly pulled. This smell continues during the whole time that the malt is on the floor; unless it be overpowered by a peculiar mouldy smell, which happens only when the grain is bad, and contains seeds incapable of germinating; or when a part of the malt has been bruised during the turning, from the carelessness of the workmen. The length, number, and progress of the roots called comings by the maltsters, vary much according to circumstances. It is well known that when barley is sown in a good soil, of a proper texture, the roots continue moderately short, and the chief effort of vegetation seems to be directed to the advancement of the stem; but, in loose ground, the former shoot out to a greater length, and the latter makes a less rapid progress. In malting again, the roots have a much greater tendency to lengthen than even in the poorest or most open soils. Accordingly, if allowed to take their course on the malting floor, in a moist, warm heap, they grow to a great length; in some cases not less than two or three inches. The prime object of the maltster is to check this inordinate length, and this he accomplishes by frequently turning over the malt. By such treatment its temperature is kept uniform, and the moisture is equally exhaled. There is, however, a considerable difference in the practice of maltsters in this respect. Some allow the roots to get to seven-eighths of an inch long; others never wish to see them above half that length. As the roots are afterwards separated from the malt and thrown away, and as their length does not contribute to the progress of malting, the latter method seems preferable.

The fourth or fifth day from the casting, and about a day after the sprouting of the roots, the rudiment of the future stem may be seen to lengthen. It rises from the same extremity with the root, and, advancing within the husk, at last issues from the opposite end of the seed, and assumes the form of a green blade of grass. But the process of malting is brought to a conclusion some time before the stem has made so much progress as to burst the husk. This rudiment of the stem is called by botanists plumula, but maltsters give it the name of acrospire. The progress of the acrospire is at first very rapid, like that of the roots. By the eighth day after casting it will have usually reached rather more than one-half the length of the grain. But after this time its progress becomes much more slow, so that frequently another week elapses, or even more, before it has made its way to near the end of the seed, when it is understood to be proper to finish the malting: were the malt allowed to lie longer on the floor, the progress of the acrospire becomes again rapid, so that it soon pushes its way out of the husk and puts on a leafy appearance. When grain is in the earth, the progress of the acrospire is much more uniform and rapid. In that case the supply of nourishment is abundant and constant, whereas, on the malt floor, the very contrary is the case.

As the acrospire shoots along the grain, the appearance of the kernel, or mealy part of the corn, undergoes a considerable change. The

glutinous and mucilaginous matter, which perhaps bind together the starchy particles, is taken up and removed. The color becomes white, and the texture so loose that the kernel crumbles to powder between the fingers. This change is progressive: it begins at that end of the seed where the roots are, and gradually proceeds onward to the other extremity; so that one portion of the kernel often appears in a friable state, while the other still retains the appearance of raw barley. It is the common opinion of maltsters, that this change of the grain always keeps pace with the acrospire; each seed being altered as far as the point of the acrospire extends, and no further. And this opinion has been rather confirmed by our observation. The whole object of malting is to produce this change in the kernel. As soon as it has taken place, the seed is no longer in the state of raw grain, but of malt. The kernel is originally composed chiefly of starch, the particles of which seem to be enveloped by a species of gluten and mucilage. This cement (or, perhaps, cellular membrane) is taken up and expended, in the first place, for the purposes of vegetation, and thus the starch is set at liberty, not, however, in the state of common starch, for its taste is somewhat sweetish, and it is completely soluble in water, which is not the case with the other. The object of malting being to procure this modified or altered starch, the process ought to be stopped as soon as it is fully disengaged and prepared. If the process has been rightly conducted, this object will be attained, as already mentioned, by the time the acrospire has come within a little of the end of the seed; but, if it proceed farther, a sudden and very considerable loss occurs. Shortly after the acrospire has made its way out of the seed, the starchy matter undergoes a farther change, becomes milky, and is very soon absorbed; leaving nothing but the empty husk.

While the malt lies on the floor each corn loses a certain portion of its weight. A part of this loss is only apparent, and occasioned by the exhalation of the moisture which had been imbibed in the steep; but, besides this, there is also a real loss of weight. If a given weight of the corn, 500 grains troy, for example, while malting, be taken daily from the floor, weighed accurately, and then dried upon a steam-bath till it ceases to lose weight, the loss at first will be considerably more than two-thirds of the weight; but, as the malting advances, the loss becomes less, and at last approaches very nearly to two-thirds.

The loss of weight, as well as the progress of the malting, depends much upon the temperature; two things respecting which require attention:—1. To keep it as equal as possible; and, 2. To keep it at the proper pitch, neither too high nor too low. Unless the first precaution be attended to, the progress of the malt is very unequal, some parts being fully ready before others have advanced half way. This inequality is attended with a great loss of weight, because many of the farthest advanced corns must be sacrificed to the progress of the rest. It is chiefly prevented by keeping the thickness of all parts of the malt as equal as possible, and by turning it over without delay, whenever an inequality of temperature can be detected in any portion of it.

'A high temperature is more injurious at the beginning 'of the flooring,' than after the malt has made some progress. Should the heat be in excess, the radicles advance too rapidly while the kernel does not undergo the wished-for change, but becomes clammy, like birdlime, a condition which is most apt to supervene in the early stage of the process, when the grain is very moist. Hence the proper temperature may be judged of pretty correctly, from the rootlets or 'commings.' If they be pretty equal, and do not exceed half an inch in length, we may consider the temperature as having been proper; but, when they lengthen suddenly and unequally, there must have been an excess of heat.'

IV. OF KILN-DRYING.—Fire is an agent so powerful in its operations, that without the greatest watchfulness all the skill and labor bestowed on the previous work would be defeated in the destruction, or deterioration, of those properties which are the first characteristics of perfect malt. And here the construction of the kiln—the nature of the fuel employed—the state of the malt at the time of its first exposure to the fire—the proper times for turning the malt, with the proper management of the fire at those times—are considerations of great moment.

1. In the first place the construction of the drying kiln demands our particular attention. The floor of the kiln on which a given quantity of malt can be dried, with the least fuel in the shortest time, without injuring the color, is undoubtedly the best.

Every maltster knows that a drying kiln is composed of an open area, or room, about twelve or fourteen feet high, having a floor of perforated tiles, or iron, on which the malt is dried. In the centre of the area, and in proportion to its dimensions, there is an enclosure, for the purpose of retaining the heat of the fire, that the whole may be regularly distributed to every part of the drying floor.

In order to construct the fire-place to the most advantage, so that there be no profuse expenditure of fuel, nor delay of time (both of which are pernicious to the malt, yet moist upon the kiln, and subject to the action of the fire), it should be so contrived that no more fresh air be admitted in that direction, than is necessary to preserve the free and uninterrupted combustion of the fuel. The grate should also be brought forward into the area of the room, beneath the drying-floor, projecting from the enclosure intended to confine the heat: because, the fresh fuel being laid chiefly in the front of the fire, a great portion of the sulphur will be consumed, in passing over the intenser heat at the back of the fire.

For the drying of pale malts it is of consequence to obtain the modifying influence of the external air. And in order that it may be sufficiently diffused, and equally heated, before it reach the malt floor, it is necessary that two small apertures be made; the dimensions of which may be from eight to twelve inches square: one on each side of the grate below the fire, and as near to the ground as possible. The external air, entering by these apertures, will mix with the current of heated air from the fire; when the whole, being of one temperature, will be quali-

fied to effect the operation of drying, without risk of injuring the color of the malt. These apertures being constructed with sliding doors, the admission of air may be regulated at the pleasure of the maltster, for all the purposes of his business.

If the fire be placed at a proper distance from the drying-floor, which ought to be sufficiently elevated above the kiln, there will be no necessity for a spark stone to diffuse the heat equally; the malt itself, being spread upon the floor, is quite adequate to perform this necessary part of the work. If the draught of a drying kiln be so violent and irregular as to require foreign aid to modify the current, it is constructed upon erroneous principles. It is therefore obvious that the old plan of the fire-grate being within the enclosure, which retains the heat, is not calculated to preserve the purest and most valuable properties of malt; for, in such instances, the sulphuric fumes of a fire newly replenished with fuel, will rise in that state, and impregnate the malt, to the manifest injury of its flavour.

A drying kiln, formed on the plan here recommended, having the room where the malt is dried well secured from the external air; and sufficiently ventilated to facilitate the escape of the heated air, will produce every shade of color that may be required. But, in order that the draught of heated air, properly modified, may be sufficiently copious and regular, the area beneath should be liberally supplied with atmospheric air, by large or numerous apertures (for the above mentioned purpose) which should be so situated, that the air flowing in may not disturb the regular operations of the fire.

2. Of the nature of the fuel employed, it is only needful to remark that the finest, containing the least sulphur, is the best; wood and straw are inadmissible, except in the making of porter malt; and then they should be used but sparingly.

3. To the state of the malt, at the time it is first exposed to the action of the fire, particular attention should be directed. That the malt on the working floor should not be so much exhausted of moisture as to interrupt the process of germination, will not admit a dispute: and, in proportion as the moisture abounds, the dangers to be apprehended from the influence of the fire are multiplied. The exact medium cannot be well described, farther than, in reference to the primary injunction not to stop the growth of the malt; that it be as free from moisture as this precaution may admit.

It is scarcely necessary to repeat that the acrospire should be worked to the end of the grain: for, except the malt has been withered, or heaped, that part of the grain which the blade has not reached is barley. Withering, or heaping the malt, will make such parts tender, indeed, without the aid of the acrospire; but then, strictly speaking, it is not malt: nor does it appear that friability, produced in this way, will yield such a portion of spirit in the liquor as might otherwise be expected; and consequently it will be deficient in those exhilarating qualities so highly esteemed by the consumer.

4. The best and most lively malts being

moist, when they are first exposed to the action of the fire, of course the heat of the kiln, at the commencement of the operation of drying, should be very moderate; and it may be increased, progressively, as the moisture is liberated. At the first, frequent turning is absolutely indispensable: and it is also equally necessary to observe, that the malt should always be not only laid upon the kiln, and turned at proper times, but finally discharged, when the fire is perfectly clear. Neither should the fire be neglected, nor the kiln get cool, before the malt be turned off; the warmer it is heaped together, after drying, the more perfectly will it be cured, or deprived of all its moisture: and the more securely will it be preserved from the subsequent action of the atmosphere. When the draught of the kiln is rapid, and the heated air is regularly diffused, the surface of the malt will be nearly as warm as the interior part; and, through the action of the circulating air, it will be light on the floor.

Under these combined circumstances and salutary precautions, when the roots of the malt are short, bushy, and strong, the fire will have free access to the malt, surrounding every individual grain. By the powerful influence of the fire the moisture, constantly exuding, will be regularly dissipated; and the dry heated air, from beneath, following in regular succession. Thus the work, without interruption, under good management of the fire, will go on until the malt be perfectly dry.

Upon a kiln where you can have a powerful draught, which may be modified and regulated at discretion, any tint or shade of color may be obtained, which is necessary for the various purposes of the brewer.

It is scarcely necessary to remark, that high dried malt, which has obtained a deep color by heat, is of less value than pale malt: because a portion of that principle which affords spirituousity to the beverage is destroyed, to the injury of the fermentation; consequently, the higher the shade the greater is the loss sustained in proportion. A current of dry heated air must constantly be passing in a regular and rapid succession through the volume of the malt, to carry off the moisture without the least interruption; because, during the process of drying, the moisture ought to be constantly evaporating; therefore, when heated plates are used, or any other mode of drying is practised, without such current of air to carry off the evaporation, the malt will be entirely spoiled, and rendered unfit for the purposes of the mash tun.

There is a medium, necessary to be observed, as to the thickness of the volume of malt on the kiln: too much would impede the draught; and, if it were laid too thinly upon the kiln, the action of fire upon every part might produce a sudden fixation of the interior parts, before all the moisture was dissipated. Where there is a good draught, the malt may be about four inches deep upon the kiln. The time required for completely drying the palest malts is from sixty to seventy hours.

It has been intimated, that the heat upon the kiln, as well as upon the floor, should be increased progressively. In the drying of malts,

for every shade of color, particular attention should be paid to the state of the fires, for the first twenty-four hours. Deep colored malt is obtained when the moisture is nearly expended. A sudden application of heat is injurious when malt is moist; it partially fixes the kernel, and imprisons a part of the moisture, by the action of an increased heat, uniformly applied at the conclusion of the work. By such injudicious mode of drying the malt, it is converted into a hard substance, which by the maltsters is called flint.

The business of the drying kiln seems to consist in completely evaporating the moisture, which otherwise would propel the acrospire beyond the limit of the husk, and, consequently, impoverish the malt beyond all calculation.

Heat and moisture are absolutely necessary to vegetation. As the proportions between these two agents vary, the process will be more or less perfect. Without moisture, heat will only contribute to the fixation of the parts: and, without the proper degree of heat, moisture would abstract the mucilage from the seed, and dissolve its substance. By this we learn that fire dissipates the moisture, when the business of germination is accomplished, for the production of malt: and that those principles, which were necessary to constitute its utmost perfection, become fixed, and cannot be altered or disturbed but by the influence of heat, of moisture, or of the air of the atmosphere. Malt, therefore, when perfectly cured, cannot be kept too thick, nor too close.

But the general rule respecting heat, air, and moisture, applies as well to the working of malt upon the floor, as to the process of drying it upon the kiln. If water be withheld, in that proportion which may be necessary to supply the demands of the vegetable fibres, and to conduct the process to perfection, the floors must be kept thick. In this case excess of heat can only produce friability in the malt, in combination with the diminished portion of moisture that still remains.

Again, if moisture be applied too profusely, or at improper intervals, through the vital influence, it will increase a disposition to generate heat; and, consequently, the conducting of the process will be rendered more difficult, and more dangerous. When, therefore, the malt is saturated with water, either on its recent removal from the cistern, or when it has just been sprinkled, its appearances and propensities should be diligently watched, that the desired effects may be obtained. In this stage of the business the influence of skilful management, dictated by the unchanging laws of nature, will be necessary to conduct the operation with propriety.

It may not be unnecessary to observe, as the administration of water furnishes the growing malt with greater powers to exercise its functions, and to perform its appointed work—that greater watchfulness will be required under the sprinkling system, than when such energies are not aroused into action. When sprinkling is not used, and the malt gets tolerably dry, the floors may remain unmolested for a whole day; nothing more being needful than to lighten them up with a

plough, an instrument ~~formed~~ for that purpose: and, so long as such malt is preferred at the market, we need not wonder that both master and servant should adhere to a mode of operation, which is attended with the least trouble and attention, and which seems to claim its preference from the prescriptive right of ancient custom.

Whether these pages may, in any degree, contribute to shorten the reign of the instrument for ploughing malt, is not for the author to anticipate. The power of reason, and the demonstrations of truth, are frequently incompetent to effect the salutary changes they propose, for the general advantage and comfort of mankind. But what reason cannot achieve, necessity will perform.

'The last process,' say Drs. Thomson, &c., 'is the cleaning of the malt. While still warm upon the kiln, it is usually trodden upon by the workmen, to separate the radicles or commings; which are at that time brittle, but soon become tough by absorbing moisture. The commings, thus detached, are afterwards separated by passing the malt through the common fanners; or, instead of this mode of cleaning, an instrument called the harp, well known to the brewers, is employed. The quantity of rootlets and broken parts of husks, thus detached from the malted grain, varies according to circumstances, but is always considerable. The malt thus obtained weighs about one-fifth less than the raw grain from which it was produced; but this diminution of weight varies somewhat according to the temperature of the kiln; the least in our trials was nineteen per cent., the greatest twenty-seven, the average about twenty-three.

'A great part of this loss of weight is to be ascribed to the kiln-drying; and consists of nothing less than the moisture which previously existed in the raw grain, and of which it would have been deprived by the heat of the kiln, as well as the malt. In order to ascertain how much of the loss was owing to this cause, the raw grain should have been kiln-dried and weighed just before it was put into the steep. In that case, the difference between the weight of the malt and of the kiln-dried grain, would have indicated the quantity of loss of substance really sustained by grain during the process of malting. As this method was not practicable in pursuing trials on a large scale, we had recourse to another, less precise indeed, but sufficient to give us a notion of the loss of weight actually sustained by the malt. Portions of the raw grain, and of the newly dried malt, were exposed to the same temperature upon a steam-bath. The loss of weight sustained by the grain being called *a*, and that by the malt *b*, it is obvious that $a-b$ represents the loss of weight which the grain would have sustained, had it been dried on the kiln at the same temperature as the malt. This subtracted from the difference between the weight of the raw grain and the malt, gave the real loss of weight sustained by the grain during the process of malting. The difference between the raw grain and the malt may be called the apparent loss, as much of it was owing to moisture, which the malt gradually imbibes again when exposed to the air.

'In the trials made by the authors of the Scotch report, the loss of weight proceeding from the dissipation of moisture, varied from eight to eighteen per cent., and the real loss from six to twelve according to the process. The average loss, from the dissipation of moisture, may be considered as fourteen per cent., and the average real loss may be stated at eight per cent. About four-tenths of this loss must be ascribed to the commings which are separated by cleaning the malt. If they be deducted, the loss sustained in malting does not exceed an average of five per cent. If we reckon the loss in the steep at one per cent. and a half, there will remain three per cent. and a half for loss upon the floor; but for this, one per cent. and a half may be safely reckoned for waste, consisting chiefly of small corns and commings, lost during the kiln-drying, and the transporting of the malt from place to place. From this statement, it follows that, at an average, 100 pounds of barley will yield seventy-eight of newly dried malt; so that there is a loss of about twenty-two pounds. Of this loss, fourteen pounds are to be ascribed to moisture, a considerable portion of which the malt receives again by standing. The real loss consists of the remaining eight pounds, which are thus accounted for:—

Lost in steep	1½
Lost in floor	3
Commings	3
Waste	0½
	<hr/>
	8

'The bulk of the malt generally exceeds that of the raw grain, though this does not always happen. The average, for instance, of all our maltings of Scotch barley gave almost exactly bulk for bulk, yet, in some instances, 100 bushels of barley yielded 109 of malt. Others, of course, must have fallen as much short. The average of the English barley was 105 bushels of malt from 100 of grain; that of the bigg ninety-nine. The greatest produce was 112 bushels of malt from 100 of barley; the least ninety-three. Probably, too, the inequality might be owing partly to the unequal degrees in which, in different cases, the malts, or both the grain and malts, had been cleaned. In our trials, the bigg did not deviate so far from equality as the barley. The weight of the malt varies also considerably; but in general a bushel of good malt, when newly dried, weighs about three-fourths of a bushel of the raw grain.'

The late Mr. Baverstock, in vindication of the public breweries, makes the following remarks founded on his own very considerable experience:—

'It is well known to chemists, to distillers, (and to the rightly informed among the brewers), that it would not be more futile to attempt to make bread from chalk, than to make any sort of vinous liquor (such as beer, wine, or intoxicating spirits), from any matters whatsoever, except from some substance that is 'saccharine.' For no other matters will yield an extract, or solution, that is capable of the vinous fermentation. Without such fermentation no spirituousity, or strength, can be produced; and, pro-

vided the fermentations be properly and similarly conducted, the quantity of vinous spirit obtained is ever in proportion to the quantity of 'sweet,' contained originally in, or drawn from, the subject or matter employed. Of all the saccharine and fermentable matters, whether native or foreign, that are procurable in these kingdoms, the three cheapest are 'malt, treacle, and sugar.' The portion of the desirable matter for producing beer, or spirit, from these three subjects, is discoverable with ease, and to certainty, by the specific gravity of the solutions of any given quantity of each or either of them. And the question, as to which is the cheapest, is then decided by the 'quantum of fermentable matter yielded, in conjunction with a consideration of their respective costs.'

'Barley, in its raw or unmaltered state, consists chiefly of mucilage, with but a very small portion of saccharine matter. By the germination in malting it the greatest part of the mucilage is converted into sugar, which then becomes so abundant as to form six parts in ten of the actual weight of the malt. The remaining four parts consist of mucilage, with the husks, or draff, of the grain. The saccharine property in malt is so much more readily extracted, in brewing, than the mucilage (under due precautions with regard to the heats of the water applied in the several mashings), that the latter may be disregarded, as affecting the gravity of the solution. Wort may, therefore, be considered as consisting of sugar dissolved in water, and the strength of wort is always proportioned to the quantity of the saccharine matter contained in a given measure of the liquid. And hence the gravity of worts, when compared with the gravity of water, may, in all cases, be received and trusted to, as the measure of their value; which is confirmed, incontrovertibly, in the practice of both distillers and brewers. The first of whom find the proportion of proof spirit, obtained from any given quantity of their wash, to be in an exact ratio to the gravity of such wash, under correct uniformity in all the parts of the process. And, under the same circumstances, the brewer obtains a greater or less price for his beer, according to the gravity of his worts; or, (which is the same) according to the quantity of malt allotted to make such worts.

'A bushel of ripe and well-cleaned barley will weigh from fifty to fifty-two pounds; of which weight one-fifth part is lost by germination and evaporation in malting, and not more, provided it be malted with a view to the quality, rather than to an injurious increase of measure. In the latter case, a full fourth part of the original weight of the barley is lost in the malting. From a bushel of perfect malt, weighing forty to forty-two pounds, may be drawn twenty-five pounds of solid extract, of equal value for the purposes of making beer and distilled spirits, as twenty-five pounds of dry powder sugar, or thirty pounds of treacle. Or each and either of them will make a barrel of wort, of ten pounds to eleven pounds heavier than water, because the water, which is displaced by the extract (viz. six quarts) weighs fifteen pounds. Estimating the costs of the several

quantities at the wholesale prices of each article, and according to the terms on which a brewer can, at this time (September 1813) purchase 100 or 500 quarters of malt, viz. at 96s. the quarter, treacle at 48s. and sugar at 90s. the 112 pounds of each, it will be found that to equal a quarter of malt, at 96s., will require 240 pounds of treacle, costing 103s., or 200 pounds of sugar, costing 165s.

'Until this statement can be disproved, or until some article, equally saccharine and fermentable as malt, can be discovered, and obtained at less cost, it may be submitted to the reader, whence can arise any temptation to a brewer to exchange malt for any other matter to make beer. Sugar is, by act of parliament 1812, permitted to be used in the breweries, but treacle is still prohibited, under such penalties as would be ruinous. No pale beer brewer could use treacle without discovery, by the color and taste of the beer.

'Sugar being manufactured uniformly by boiling it to a given and equal consistence, very little or no variation is found in a given weight of the same sorts of it, although the quality of the cane juice, from whence it is made, differs greatly, according to the wetness, or dryness of the season in the West Indian Islands; and the same may be said, or nearly so, of the treacle: but the malts from barley differ very much, according to the condition of the grain, and the skill and integrity of the maltster. The prices also of all the three are, we know, continually fluctuating, yet the advantage will be found to remain with the malt, by those who will take the trouble to make calculations on the contemporary prices of each. And this, either with or without taking into consideration, that if sugar or treacle were to be used, in but a trifling proportion in the breweries, the prices of them would be immediately and greatly advanced, and malt would be in a proportionate degree cheaper. But, although sugar has been allowed to be used in the breweries for more than a year past (as also on some former occasions), it has not been found that any consumption of it takes place among the well-informed part of the trade, to make beer.

The statement here given of the comparative value of the three 'sweets,' differs so widely from the notions generally entertained by the public, that it is to be expected the correctness of it will be doubted. The truth of it, however, is proved by distillation; for, so very exact is the proportion of vinous spirit producible from the wort, to its gravity in its first state, that the practical distillers may ascertain, to a single gallon, what will be the produce of proof spirit, from 10,000 gallons, or any greater or less quantity of their fermented liquor, previously to committing it to the stills; which rule is founded on the known number of pounds of fermentable matter required to produce each gallon of spirit, whether the fermentable matter were drawn from malt, from sugar, or from treacle. The whole of which would be impracticable, if there were any distinction in the vinous properties of the different extracts; or if the gravity of the worts were not, in all

the cases, a correct criterion of their value. This rule extends also to, and is practicable in, the brewery.'

On the subject of instruments he afterwards adds:—By simple evaporation, malt wort is brought first to the consistence of treacle, and finally to a fixed and solid extract. Dycas's hydrometer shows the exact number of pounds of such extract, which is contained in thirty-six gallons of wort, each pound whereof occupies the space of .06 parts of a gallon of the water. Quin's, Richardson's, and Dring's instruments show, merely, the addition of gravity in a barrel of wort, caused by the difference between the weight of the extract and the weight of the water so displaced. All of the last three instruments differ in a slight degree from each other in their indications, yet not so materially but that all of them may be made similarly useful in the hands of judicious practitioners in the distilleries or breweries.

'Taking the average indications of Quin's, Richardson's, and Dring's hydrometers, each pound of additional gravity (to the water) shows the existence of two-sixths of a pound of extract according to Dycas's rule. And thus a wort of thirty pounds per barrel heavier than water contains seventy-eight pounds of saccharine extract, which is shown at one view, by Dycas's instrument. Dring and Fage's improved instrument, constructed according to the principles laid down by Dr. Thomson in the valuable report before alluded to, shows by means of a sliding rule, given with it, the quantity of dry extract per cent., contained in any given quantity of malt.

'A barrel, or thirty-six gallons, beer measure, of rain water, should weigh 367.2 pounds at the rate of 1000 ounces for each cubic foot, which is concluded to be the precise specific gravity of such water. But, that which is in general use being somewhat harder and heavier, it will be nearer the truth to fix it on 369 pounds as the weight of a barrel of water in the breweries. Hence, what is called a barrel of wort of thirty pounds, weighs actually 399 pounds: viz. 369 pounds the water, and thirty pounds additional for the wort. Dycas's instrument shows that the constituents of a barrel of such wort are seventy-eight pounds of fermentable extract, which, occupying the space of 4.68 gallons of the liquid, at .06 for each pound, leaves 31.32 gallons of water, the weight whereof, at 10.25 pounds per gallon, amounts to 321 pounds, to which, adding the extract of seventy-eight pounds, we find the total weight to be 399 pounds, as by the others. An exact quart of raw wort, 76.5 pounds, by Dycas, was evaporated to dryness; and, as the extract could not be cleanly separated from the vessel employed, the whole was put into a scale and weighed 24.25 ounces. The vessel (when perfectly cleaned with hot water, which brought the extract again to the state of sweet wort) weighed 15.75 ounces, thereby showing that the actual quantity of extract contained in the quart of wort

was 8.5 ounces, which, multiplied by 144, the quarts in thirty-six gallons, gives 1224 ounces, which, divided by sixteen, gives 76.5 pounds; four ounces of powder-sugar, on being dissolved in a glazed earthen vessel (previously weighed), and brought to a solid extract, lost one-eighth part of its weight, by evaporation in the process. We may hence reasonably conclude that each pound of malt extract is of equal value and usefulness to a distiller or to a brewer, as one pound of sugar, in the state that the last is sold in the shops. For the saccharine matter contained in the extract of malt, is not more (if so much) diminished by the very small portion of mucilage, which mingles with it, when running from the mashing-tun, than the sugar is weakened by its hydrogenous or watery particles; and, if this be granted, it follows that Dycas's hydrometer shows, at once, the number of pounds (or half pounds) of 'sugar,' contained in each thirty-six gallons of malt wort. Further, if the exhausted grains in a brewing of malt were deprived of their moisture, by drying them on a kiln, it would be found that a bushel of them would be so much lighter than the malt (in its dry state) as the amount of the extract, drawn from each bushel, viz. :—

Say Malt.	Extract.	Grains.	} per bushel.
40lbs.	25lbs.	15lbs.	

'This has been proved satisfactorily, and may be experienced in little time, and without much trouble, because on a small scale. And such examination of the separate parts of a bushel of malt is further satisfactory, inasmuch as it confirms the amount of fermentable matter extracted from this, or any given quantity of malt, as the same may have been shown by Dycas's hydrometer.'

MALT DUTIES.—In June, 1802, the whole amount of the duties on malt was only 10s. 6d. per quarter; it was then raised to the following sums per bushel:

	s.	d.	
English malt	4	4	or 100
Malt of Scotch barley	3	8½	or 84.856
Malt of Scotch big	3	0½	or 69.472

But 2s. of this was considered a war-tax, and to continue only to six months after a general peace. In 1816 therefore it was taken off; but in 1819 a new duty was imposed which raised it to 28s. per quarter. Since which the 3d Geo. IV., c. 18, has reduced it to 8s. per bushel, or 20s. per quarter. The new Malt Consolidation Act was so extravagant in its provisions and restrictions, that it prevented the whole of the respectable part of the maltsters commencing operations at the usual period in 1827, and diminished the quarter's revenue, we understand, full £60,000. Under these circumstances the lords of the treasury thought it proper to suspend a considerable part of its provisions; and the whole measure was remodelled at the meeting of parliament. See **BREW.**

MALTON, a borough, and market town in the North Riding of Yorkshire, seventeen miles and a half north-east from York, and 217 north by west from London, situate on the river Derwent, over which it has a handsome stone bridge. The town is about half a mile long, and has two parish churches, besides three places of worship for Quakers, Presbyterians, and Methodists. Here are also a handsome suite of public rooms and a theatre. The river is navigable up to the town, by which large quantities of corn, butter, and hams, are sent to different parts of the kingdom. Malton has returned two members to parliament ever since the twenty-third of Edward I., the right of election being vested in the holders of burgage tenures. The town is governed by a bailiff. It has two iron foundries, and the manufactures of malt, linen, hats, and gloves, are carried on here. Markets on Tuesday and Saturday.

MALVA, the mallow, a genus of the polyandria order, and monadelphia class of plants; natural order thirty-seventh, columniferae: CAL. double, exterior one triphyllous; the arilli numerous and monospermous. There are numerous species; consisting of herbaceous perennials, biennials, and annuals, for medical, economical, and ornamental uses; rising with erect stalks from about half a yard to ten or twelve feet high, garnished with large, roundish, lobated leaves, and quinquepetalous flowers. They are all raised from seed.

M. communis, the common mallow. The leaves are reckoned the first of the four emollient herbs: decoctions of them are sometimes employed in dysenteries, heat, and sharpness of urine; and, in general, for obtunding acrimonious humors: their principal use is in emollient gylsters, cataplasms, and fomentations. The leaves enter the official decoctions for gylsters, and a conserve is prepared from the flowers.

M. crispa, Maurisiana, and Peruviana, when macerated like hemp, afford a thread superior to hemp for spinning, and which is said to make more beautiful cloths, and stuffs than even flax. From the *crispa*, which affords stronger and longer fibres, cords and twine have also been made. From these species, likewise, a new sort of paper was fabricated by M. de l'Isle. On this invention, Messrs. Lavoisier, Sage, and Berthollet, in name of the Academie des Sciences, observe, that 'it is not probable the paper made by M. de l'Isle will be substituted for that made from rags, either for the purpose of printing or writing. Yet paper from the mallows may be used for these purposes, if we can judge from a volume printed on it presented to the academy. The great utility of M. de l'Isle's invention is for furniture, which consumes a great quantity of rags; and his papers have a natural hue, much more solid than can be given by coloring matter, and this hue may serve as a ground for other drawings.'

MALVASIA, an island of Greece, on the east coast, famous for Malmsey and other wines; fifty miles south-east of Misitra, and seventy-five south of Athens. Napoli is the capital.

MALVERN CHASE, an extensive district of England, containing upwards of 7000 acres in

Worcestershire, 600 in Herefordshire, and 100 in Gloucestershire.

MALVERN, GREAT, a town of Worcestershire, in which was formerly an abbey, whereof nothing remains but the gateway and church. Part of it was a religious cell for hermits before the conquest; and the greatest part, with the tower, built in the reign of William I. Its outward appearance is very striking. It is 171 feet in length, sixty-three in breadth, and sixty-three in height. In it are ten stalls; and it is supposed to have been rebuilt in 1171. The nave only remains in part, the side aisles being in ruins. The windows have been beautifully enriched with painted glass, and in it are remains of some very ancient monuments.

MALVERN HILLS, lofty mountains in the south-west part of Worcestershire, rising one above another, for about seven miles, and dividing that county from Herefordshire. On these hills are two medicinal springs. They run from north to south, the highest point 1315 feet above the surface of the Severn at Hanley, and appear to be of limestone and quartz. On the summit of these hills is a camp with a treble ditch, supposed to be Roman, and situated on the Herefordshire side of the hills.

MALVERN, LITTLE, a town of Worcestershire, seated in a cavity of the above hills, three miles from Great Malvern. It had an elegant abbey and church. Henry VII., his queen, and his two sons were so delighted with this place, that they beautified the church and windows, part of which remain, though mutilated. In the lofty south windows of the church are historical passages of the Old Testament; and in the north windows are pictures of the principal events of our Saviour's life, from his birth to his ascension. Our Saviour's passion is painted in the east window of the choir, at the expense of Henry VII., who is represented with his queen. In the west window is a noble piece of the day of judgment.

MALVERSATION, *n. s.* Fr. *malversation*. Crookedness of conduct; artifice; trick.

The *malversation* of the unjust steward is not exhibited for our imitation, but his prudence.

Lessons of Prudence.

MALVEZZI (Virgil), marquis of Malvezzi, was born at Bologna in 1599, and became LL.D. in 1619. He was well versed in literature, music, law, physic, and mathematics. He served also in a distinguished post in the army of Philip IV. of Spain, and was employed by him in some important negotiations. He died at Bologna, in 1654, leaving several works in Spanish and Italian. His Discourses on the First Book of Tacitus have been translated into English.

MALUS (Stephen Louis), a military engineer in the French service, was born at Paris in 1775. At seventeen years of age he produced a tragedy on The Death of Cato, but chiefly devoted himself to the mathematics, and was admitted into the school of engineers. When, however, he was about to obtain a commission some political obstacle occurred, and he entered the army as a private soldier. Shortly after, his abilities being observed, he was sent to the Polytechnic school, of which he became a professor, and accompanied the expedition of Buonaparte to Egypt,

as an officer of engineers. Having on his return called the attention of the Institute of France to the phenomenon of double refraction, they made it the subject of a prize, which Malus gained; and made some important experiments on the polarity. This gained him admission into the Institute. He also wrote a *mémoire* on a discovery he made of a branch of the Nile, forming part of the first volume of *La Decade Egyptienne*. Malus died in 1812.

MALWAH, a province of Hindostan, situated between 22° and 23° of N. lat. On the north it is bounded by Ajmeer and Agra, on the east by Allahabad and Gundwanah, on the south by Khandeish and Berar, and on the west by Ajmeer and Gujerat, being in length about 250 miles, and in breadth 150. Till recently it was in the occupation of the Mahrattas, and contained the capitals of Dowlet Row Scindia, and Holkar. Numerous rivers have their sources here: as the Chumbul, Narbudda, Sopra, and Cane; the land is fertile, the soil being in general a fine black mould, and produces cotton, indigo, opium, sugar, fine tobacco, and all the grains of India. Here is also pasture for numerous herds of cattle, and flocks of sheep. It has two harvests, the first or superior ending in April, the second in October. The tobacco, particularly that of the district of Bilsah, is carried to all parts of the east.

Bickermajeet, a famous rajah of Hindostan, reigned over Malwah, and overran so many other provinces, that the Hindoos have adopted his reign as one of their eras. It commenced fifty-seven years before the birth of Christ. His capital was about a mile to the northward of Oujain. The Mahomedans conquered this province in the middle of the thirteenth century; but on the death of the emperor Balin, in 1286, Dilavur Khan rebelled, and laid the foundation of an independent kingdom, which lasted upwards of 170 years. Its capital was Mundu, an extensive city, situated in the hills, south of Oujain. Malwah was subdued by the Mogul emperor Homayon, in the year 1534, and remained annexed to Delhi till after the death of Aurungzebe in 1707, when it was by degrees taken possession of by the Mahrattas, by whom it was divided into several states. See **MAHRATTAS**. The ancient landholders, called Grasiyah, yet retain possession of some of the hill forts.

MAM, *n. s.* Lat. *mamma*; Gr. *μαμμα*; **MAMIE**, } Arab. and Heb. *mam*; Pers. *ma-*
MAMMA, } *ma*. All the eastern, and most
MAMMET. } of the northern languages, have this kind of compellation for mother: *nammet* is a doll or puppet.

Kate! this is no world
To play with *mammets*, and to tilt with lips.

Shakspeare.

Poor Cupid sobbing scarce could speak;

Indeed, *mamma*, I did not know ye;

Alas! how easy my mistake,

I took you for your likeness Chloe.

Prior.

Little masters and misses are great impediments to servants; the remedy is to bribe them, that they may not tell tales to papa and *mamma*.

Swift.

And now she works her *mamie's* war,

And aye she sighs wif' care and pain;

'Yet wistna what her ail might be,

Or what wad mak her weel again. *Burns.*

MAMBRUN (Peter), a learned French Jesuit, born in Clermont in 1581. He was one of the most perfect imitators of Virgil in Latin poetry, and his poems are of the same kind. Thus he wrote *Eclogues*, *Georgics*, together with a heroic poem entitled *Constantine*, or *Idolatry overthrown*. He showed also great critical abilities in a Latin *Peripatetical Dissertation* on Epic Poetry. He died in 1661.

MAMERTINI, a mercenary band of soldiers who passed from Campania into Sicily at the request of Agathocles. When they were in the service of Agathocles, they claimed the privilege of voting at the election of magistrates at Syracuse, and had recourse to arms to support their demands. The sedition was appeased by some leading men, and the Campanians were ordered to leave Sicily. In their way to the coast they were received with great kindness by the people of Messana, and soon returned perfidy for hospitality. They conspired against the inhabitants, murdered all the males in the city, married their wives and daughters, and rendered themselves masters of the place. After this violence they assumed the name of Mamertini, and called their city Mamertum, or Mamertium, from a provincial word which in their language signified martial or warlike. The Mamertines were afterwards defeated by Hiero.

MAMMÆ. See **ANATOMY**, Index.

MAMMALIA, in natural history, the first class of animals in the Linnean system, divided into seven orders. See **ZOOLOGY**.

MAMMOCK, *n. s.* & *v. a.* Span. *nuchan*, or Ital. *maccarl*, to pound; to beat small. A shapeless mass: to break, or tear to pieces.

I saw him run after a gilded butterfly; and he did so set his teeth, and did tear it! Oh, I warrant, how he *mammockt* it. *Shakspeare. Coriolanus.*

The ice was broken into large *mammocks*.

James's Voyage.

MAMMON, *n. s.* Gr. *μαμμωνας*, of Heb.

MAMMONIST. מלכ. Riches. Milton

makes him a fallen angel, but few retain more power.

Ye cannot serve God and *mammon*. *Matt. vi. 24.*

Mammon is so proud a boaster, that his chiefs, which believe in him, cannot chuse but be confident of him; for what doth he not brag to do? Yet, if we weigh his power aright, we shall conclude of *mammon*, as Paracelsus doth of the devil, that he is a base and beggarly spirit. *Bp. Hall.*

That great *mammonist* would say, he is rich that can maintain an army: a poor man would say, according to that Italian inscription, 'He is rich that wants not bread.' *Id.*

MAMMOTH, **MAMMUTH**, or American elephant, a huge animal, now unknown, if not extinct, to which have belonged tusks, bones, and skeletons of vast magnitude, which have been often found in different parts of Siberia, Russia, Germany, and North America. Many specimens of them are seen in the Imperial cabinet at Petersburg; in the British, and Dr. Hunter's museums, and in that of the Royal Society. Mr. Pennant thinks it 'more than probable, that it still exists in some of those remote parts of the vast new continent, penetrated yet by Europeans.' The Ohio Indians have the most absurd and ridiculous traditions respecting it, and pre-

tend that it required an exertion of even omnipotent power to extirpate them. Sir Hans Sloane, Gmelin, Daubenton, Buffon, and other eminent naturalists, are of opinion that these prodigious bones and tusks have really belonged to elephants; and many modern philosophers have held the mammoth to be as fabulous as the centaur. The great difference in size they endeavour to account for as arising from difference in age, sex, and climate: and the cause of their being found in those northern parts of the world where elephants are no longer natives, nor can even long exist, they attribute to the great revolutions which have happened in the earth, by earthquakes and inundations. In 1767 Dr. Hunter, with the assistance of his brother Mr. J. Hunter, investigated more particularly this part of natural history, and proved, that these fossil bones and tusks are not only larger than the generality of elephants, but that the tusks are more twisted, or have more of the spiral curve, than elephants' teeth; and that the thigh and jaw bones differ in several respects from those of the elephant: but what put the matter beyond all dispute was the shape of the grinders, which clearly appeared to belong to a carnivorous animal, or at least to an animal of the mixed kind; and to be totally different from those of the elephant, which is well known to be of the graminivorous kind. North America seems to be the quarter where the remains abound most. On the Ohio, and in many parts farther north, tusks, grinders, and skeletons of unparalleled magnitude, which can admit of no comparison with any animal at present known, are found in vast numbers, some lying on the surface of the earth, and others a little below it. A Mr. Stanley, taken prisoner by the Indians near the mouth of the Tennessee, relates, as Mr. Jefferson informs us, that after being transferred through several tribes, from one to another, he was at length carried over the mountains, west of Missouri to a river which runs west; that these bones abounded there; and that the natives described to him the animal to which they belonged as still existing in the northern parts of their country. Bones of the same kind have been found some feet below the surface of the earth, in salines on the north Holston, a branch of the Tennessee, about lat. $36^{\circ} 30' N$. Wherever the grinders are found, there also we find the tusks and skeleton; but no skeleton of the hippopotamus nor grinders of the elephant. Mr. Jefferson urges the following among other decisive arguments, that the mammoth is quite a different animal: 1. 'The skeleton of the mammoth bespeaks an animal of five or six times the cubic volume of the elephant, as M. de Buffon has admitted. 2. The grinders are five times as large, are square, and the grinding surface studded with four or five rows of blunt points: whereas those of the elephant are broad and thin, and their grinding surface flat. 3. I have never heard an instance of the grinder of an elephant being found in America. 4. From the known temperature and constitution of the elephant, he could never have existed in those regions where the remains of the mammoth have been found. The elephant is a native only of the torrid zone

and its vicinities: if, with the assistance of warm apartments and warm clothing, he has been preserved in life in the temperate climates of Europe, it has only been for a small portion of what would have been his natural period, and no instance of his multiplication in them has ever been known. But no bones of the mammoth have been ever found farther south than the salines of the Holston, and they have been found as far north as the arctic circle.' Mr. Jefferson concludes, that, 'To whatever animal we ascribe these remains, it is certain such a one has existed in America, and that it was the largest of all the terrestrial beings of which any traces have ever appeared.' *Notes on the State of Virginia*, p. 65.

MAMMOTH CAVE, a stupendous cavern of Kentucky, near Green River, 130 miles S.S.W. of Lexington. An interesting account of it has been published by Dr. Nahum Ward. Having determined to explore this subterranean phenomenon, he provided himself with girdles, lamps, a compass, and refreshments, and descended a pit about forty feet deep, which leads to the mouth of the cavern. This is about forty or fifty feet high, and thirty feet wide, but soon grows narrower, after which it expands again to nearly the same width, but only about half the height, which dimensions it preserves for about a mile, when it reaches the first hoppers, where a manufacture of salt-petre has lately been established. From this place to the second hoppers, about two miles from the entrance, the width of the gallery is forty feet, and its height sixty. Along nearly the whole of this length walls have been built, of loose limestone, and the bottom is smooth and hard. In all the galleries, indeed, which the Dr. traversed, the sides were nearly perpendicular, and the arches regular, and so strong that they have even withstood the shocks of earthquakes. In 1802 these phenomena were severely felt in this part of Kentucky; and the workmen stationed at the second hoppers, about five minutes before each shock, heard a heavy rustling noise, like a strong wind, rushing from the cave. When that ceased, the rocks cracked, and the whole appeared as if upon the point of immediate destruction. Large rocks also fell in some parts of the cavern, but none of the men were injured.

From this part the passage runs for about a mile towards the west, and then changes to southwest till it reaches the chief area or city, about six miles from the mouth of the cave. From the second hoppers to this place the gallery is nearly 100 feet high, and of a corresponding width. The floor is level, and is covered with loose stones and salt-petre earth. Dr. W. then observes, 'when I reached this immense area (called the chief city), which contains upwards of eight acres, without a single pillar to support the arch, which is entire over the whole, I was struck dumb with astonishment.—Nothing can be more sublime and grand than this place, of which but a faint idea can be conveyed, covered with one solid arch, at least 100 feet high, and to all appearance entire.' Having explored this area, five passages were found leading from it, and varying in width from sixty to 100 feet, and generally about forty feet high.

The first of these galleries they entered, after several winding avenues, the extent of which they estimated at five miles, brought them again to the city. Here they rested a short time, and, having trimmed their lamps and taken some refreshments, they entered another of the openings, and after about two miles arrived at the second city. This was covered with a single arch, nearly 200 feet high in the centre, and was similar to the great area they had just left, except in having only two outlets instead of five. One of these they entered, which, after nearly a mile, brought them to a third area, which was a square of about 100 feet each way, and fifty in height, with a stream of pure water issuing from one side of the well, about thirty feet high, and falling upon a broken surface of stones, where it was lost. A few yards beyond this sheet of water, the party found the end of the avenue. Having returned a short distance, they entered another gallery which branched from that they had passed, and after having traversed this and another passage uncommonly black, for more than a mile, a steep ascent brought them to the fourth city, which was not inferior to the second, and was canopied by an arch that covers at least six acres. In this last avenue, the extremity of which they thought could not be less than four miles from the chief city, and ten from the mouth of the cave, they found more than twenty large piles of saltpetre earth on one side, and heaps of broken limestone on the other, which were evidently the work of human hands. Having returned once more to the chief area, though past ten at night, the Dr. entered the fifth and last avenue that leads from it, and, proceeding about 900 yards, he reached the fifth area, the arch of which covers more than four acres of level ground, strewed with limestones, and having fire-beds of uncommon size, with brands of cane interspersed. Another avenue, on the opposite side, led to one of much greater dimensions, the walls of which were more perfect than they had yet been seen. This was level, and about a mile and a half long, and covered with an elegant arch. Towards the end a kind of vertical passage was found, which led into a chamber at least 1800 feet in circumference, and the centre of its arch 150 feet high. It was midnight when the Dr. entered this chamber of eternal darkness, and when he reflected that he was several miles buried in the recesses of this awful cavern, which most likely had been the grave of millions of human beings, he felt a kind of shivering horror at his situation. The avenue or passage that led to the opposite side of this chamber was as large as any of the others he had passed through; but, after having been sixteen hours in the cave, his lights were almost exhausted, and he could not trace it to its source; he therefore made the best of his way to the chief area, trimmed his lamps for the last time, and reached the entrance of the cavern about three in the morning, after nineteen hours constant fatigue. The air of the interior is rendered very pure by the nitre contained in the cave; and the Dr. says his pulse beat stronger, but not so quick, while he exhaled it, as when he breathed the atmospheric air. It is supposed that the Green River, a stream which is navigable for several

hundred miles, passes over three of the branches of this noted cave, yet no symptom of its oozing through the strata seems to have been discovered.

Here Dr. W. observes, that he has scarcely described half the cave, as he has not given any account of the avenues that branch off between the mouth and the second hoppers. These include many passages and galleries, some of which have obtained particular names; as the 'Glauber-salt room,' from the salt of that kind being found there; the sick-room, the flint-room, and the bathroom, with a winding passage that branches off near the second hoppers, and runs between the west and the south for nearly two miles. This is called the 'haunted chamber,' from the echo that is heard within it. The arch is beautifully incrustated with limestone spar; and in many places elegant columns of the same materials extend from the top to the floor. Near the centre of this chamber there is a dome apparently fifty feet high, which appears as if hung with drapery festooned in the most fanciful manner, and reflecting the light of the lamps in the most brilliant colors. In the vicinity of the 'haunted chamber' a cataract is heard; and, at the extremity of the avenue, is a reservoir of water, very clear and grateful to the taste, but without any apparent outlet. Near this were found columns of the most brilliant description, sixty or seventy feet high, and standing in basins of water, which the Dr. considers unrivalled. He brought with him a mummy from the second hoppers, whither it had been removed from another cave for preservation. It was presented to him by his friend Mr. Wilkins, the proprietor of the cavern, with its apparel, jewels, music, and whatever was about it, and is now in the Washington Museum.

This is certainly one of the most singular and stupendous caverns yet discovered; but whether the gloom through which the Dr. must have seen the large areas he describes (having only two lamps) may not have induced him to think them greater than they really are, must be left for the judgment of the reader; one fact deserves particular attention, it is that he traversed the cave with very little intermission for nineteen hours, a fact of itself that gives it an indisputable claim to the most extensive subterranean wonder yet known.

MAMORE, a large river of Quito, in the province of Moxos. According to some accounts it has its rise in an interior lake, and, after being joined by various rivers, enters the Madera on the west side, in lat. $11^{\circ} 55' S.$; by other accounts it assumes the name of Madera, after passing 14° of S. lat. There is also a river of this name in the province of Santa Cruz de la Sierra.

MAMORONI, a river of South America, in the plains which border the Amazons. It runs east, and enters the Madera.

MAMRE, an Amorite, brother of Aner and Eshcol, and friend of Abraham. (Gen. xiv. 13). See ANER. Mamre dwelt near Hebron, and communicated his name to great part of the country round about. Hence we read (xiii. 18, xxiii. 17, &c.) that Abraham dwelt in Mamre, and in the plain of Mamre. But it is observed, that what we translate the plain should be ren-

dered the oak, of Mamre, because the word *elon* signifies an oak or tree of long duration. Sozomen says, that this tree was still extant, and famous for pilgrimages and annual feasts, even in Constantine's time; that it was about six miles from Hebron; that some of the cottages which Abraham built were still standing near it; and that there was a well likewise of his digging, whereunto both Jews, Christians, and Heathens, did at certain seasons resort, either out of devotion or for trade, as a great mart was held there. To these superstitions Constantine the Great put a stop.

MAN, *n. s. & v. a.* } Sax. *man*, *mon*; Goth. *man*; Swed. and Arm. *man*; perhaps of Goth. *manne*, *magn*, strength. A human being; and used generically for all mankind: a human being of the male sex; a full grown human male; a servant, or attendant: a term of familiar address; any one; a well-qualified or wealthy man: hence, perhaps, 'a man of war,' a ship well qualified in this way: to man is to furnish, guard, assault, or strengthen with men; to attend; to tame (as a hawk, particularly).
MAN'FUL, *adj.*
MAN'FULLY, *adv.*
MAN'FULNESS, *n. s.*
MAN'HATER,
MAN'HEAD,
MAN'HOOD,
MAN'IKIN,
MAN'KILLER,
MANKIND',
MAN'LESS, *adj.*
MAN'LIKE,
MAN'LINESS, *n. s.*
MAN'LY, *adj.*
MAN'NISH,
MAN'QUELLER,
MAN'SLAUGHTER,
MAN-SLAYER,
MEN, *plu.*
MEN-PLEASER.

man (Belg. *manniken*): mannish, masculine; bold: man-queller, a man-killer, or murderer: manslaughter is explained at length below: the other compounds seem obvious in their meaning.

What profiteth it to a man if he wyne all the world and suffice peyring of his soul? or what chaungyng schal a man give for his soul?

Wiclif. Matt. xvi.

But whanne the benygnyte and the *manhead* of our sauuyour god apperide, not of werkis of rightwisnesse that we diden, but bi his merci he maad us saaf.

Id. Tye iii.

Every man child shall be circumcised.

Gen. xvii. 10.

Cities for refuge for the manslayer. Numbers.

Thou art but a youth, and he a man of war from his youth.

1 Sam. xvii. 33.

God hath made man upright; but they have sought out many inventions.

Eccles. vii. 29.

Servants be obedient to them that are your masters: not with eye-service, as men-pleasers; but as the servants of Christ, doing the will of God from the heart.

Eph. vi. 6.

Al her limnis so wel answering

Werin to womanhode, that creature

Was never lesse mannish in seeming.

Chaucer. Troilus and Creseide.

Manners maketh man.

William of Wickham.

The whole pleasure of that book standeth in open manslaughter and bold bawdry.

Aecham.

Wits live obscurely, men know not how; or die obscurely, men mark not when.

Id.

Such a right manlike man, as nature of an erring, yet shows she would fain make.

Sidney.

Nature had proportioned her without any fault; yet altogether seemed not to make up that harmony that Cupid delights in; the reason whereof might seem a mannish countenance, which overthrow that

lovely sweetness, the noblest power of woman-kind, far fitter to prevail by parley than by battle. Sidney.

Nothing so hard but his valor overcame; which he so guided with virtue, that although no man was spoken of but he for manhood, he was called the courteous Amphialus. Id.

What a piece of work is man! How noble in reason! How infinite in faculties! In form and moving, how express and admirable! Shakespeare.

My brother's servants

Were then my fellows, now they are my men. Id.

I had so much of man in me,

But all my mother came into mine eyes,

And gave me up to tears.

Id. Henry V.

You may partake of any thing we say:

We speak no treason, man. Id. Richard III.

Bring forth men children only!

For thy undaunted metal should compose

Nothing but males.

Id. Macbeth.

I dare do all that may become a man;

Who dares do more is none.

Id.

There would this monster make a man; any strange beast there makes a man.

Id. Tempest.

Your ships are not well manned;

Your mariners are muleteers, or reapers.

Shakespeare.

See, how the surly Warwick mans the wall. Id.

Man but a rush against Othello's breast,

And he retires.

Id. Othello.

A mankind witch! hence with her, out o' door:

A most intelligency bawd! Id. Winter's Tale.

As did Æneas old Anchises bear,

So I bear thee upon my manly shoulders.

Shakespeare.

I slew him manfully in fight,

Without false vantage, or base treachery.

Id.

Tetchy and wayward was thy infancy;

Thy school days frightful, desperate, wild, and furious;

Thy prime of manhood daring, bold, and venturous. Id.

A woman, impudent and mannish grown,

Is not more loathed than an effeminate man. Id.

Such gentlemen as are his majesty's own sworn servants should be preferred to the charge of his majesty's ships; choice being made of men of valour and capacity rather than to employ other men's men.

Raleigh's Essays.

Their ships go as long voyages as any, and are for their burdens as well manned. Id.

In Seth was the church of God established; from whom Christ descended, as touching his manhood.

Raleigh.

Plato witnesseth, that soon after mankind began to increase they built many cities.

Id.

He had manned it with a great number of tall soldiers, more than for the proportion of the castle.

Bacon.

Sir Walter Raleigh was wont to say, the Spaniards were suddenly driven away with squibs, for it was no more but a stratagem of fire-boats manless, and sent upon the Armada at Calais by the favour of the wind in the night, that put them in such terror, as they cut their cables.

Id.

It hath been agreed, that either of them should send certain ships to sea well manned, and apparelled to fight.

Huyward.

They distil their husbands' land

In decoctions, and are manned

With ten empiricks in their chamber,

Lying for the spirit of amber.

Ben Jonson's Forest.

A Flemish man of war lighted upon them, and overmastered them. Carew's Survey of Cornwall.

Artemisia behaved herself *manfully* in a great fight at sea, when Xerxes stood by as a coward.

Abbot.

Glasses that are once cracked, are soon broken: such is a *man's* good name, once tainted with just reproach.

Bp. Hall.

A navy, to secure the seas is *manned*;

And forces sent. *Daniel's Civil War.*

I and my *man* will presently go ride

Far as the Cornish mount. *Cowley.*

No *man* shall dare to say at doomsday unto God, that he made him to sin, or made it unavoidable.

Jer. Taylor.

In *man* the god descends, and joys to find

The narrow image of his greater mind. *Creech.*

He thought fit that the king's affairs should entirely be conducted by the soldiers and *men* of war.

Clarendon.

Advise how war may be best upheld,

Manned by her two main nerves, iron and gold,

In all her equipage. *Milton.*

Ererwhile perplexed with thoughts what would become

Of me and all *mankind*; but now I see

His day, in whom all nations shall be blest. *Id.*

Not therefore joins the Son

Manhood to Godhead, with more strength to foil

Thy enemy. *Id. Paradise Lost.*

To overcome in battle, and subdue

Nations, and bring home spoils with infinite

Manlaughter, shall be held the highest pitch

Of human glory. *Id.*

A handful

It hath devoured 'twas so *manful*. *Hudibras.*

They *man* their boats, and all their young men

arm. *Waller.*

A *man* in an instant may discover the assertion to be impossible. *More's Divine Dialogues.*

What poor *man* would not carry a great burthen

of gold to be made a *man* for ever? *Tillotson.*

He is a good-natured *man*, and will give as much as a *man* would desire. *Stillington.*

A creature of a more exalted kind

Was wanted yet, and then was *man* designed,

Conscious of thought. *Dryden's Ovid.*

Ceneus, a woman once, and once a *man*,

But ending in the sex she first began. *Id. Æneid.*

Serene and *manly*, hardened to sustain

The load of life, and exercised in pain. *Dryden.*

'Tis in my pow'r to be a sovereign now,

And, knowing more, to make his *manhood* bow. *Id.*

To kill *mankillers* *man* has lawful power,

But not the extended licence to devour. *Id.*

When *mannish* Mevia, that two-handed whore,

Astride on horseback hunts the Tuscan boar. *Id.*

A combination of the ideas of a certain figure with the powers of motion and reasoning joined to substance, make the ordinary idea of a *man*.

Locke.

Young master, willing to shew himself a *man*, lets himself loose to all irregularities; and thus courts credit and *manliness* in the casting off the modesty he has till then been kept in. *Id.*

He that with this Christian armour *manfully* fights against, and repels, the temptations and assaults of his spiritual enemies; he that keeps his conscience void of offence, shall enjoy peace here, and for ever.

Ray on the Creation.

The summe is take of the same trumpet's call, To sally from one port, or *man* one publick wall. *Tate.*

The pleasure of the religious *man* is an easy and portable pleasure, such an one as he carries about in

his bosom, without alarming either the eye or the envy of the world. *South.*

Will reckon he should not have been the *man* he is, had not he broke windows, and knocked down constables, when he was a young fellow. *Addison's Spectator.*

The Venetians could set out thirty *men* of war, a hundred galleies, and ten galeases; though I cannot conceive how they could *man* a fleet of half the number. *Id. on Italy.*

What hinders then, but that you find her out, And hurry her away by *manly* force? *Id. Cato.*

Theodosius, having *manned* his soul with proper reflections, exerted himself in the best manner he could, to animate his penitent. *Id. Spectator.*

On human actions reason though you can, It may be reason, but it is not *man*.

Pope's Epistles.

All *mankind* alike require their grace,

All born to want; a miserable race. *Id. Odyssey.*

By fraud or force the suitor train destroy,

And, starting into *manhood*, scorn the boy. *Pope.*

A long time since the custom began, among people of quality, to keep *men* cooks of the French nation. *Suici.*

How is it possible to expect that *mankind* will take advice, when they will not so much as take warning? *Id.*

In matters of equity between *man* and *man*, our Saviour has taught us to put my neighbour in the place of myself, and myself in the place of my neighbour. *Watts's Logick.*

Whenever *man* is put over *men*, as the better nature ought ever to preside in that case more particularly, he should as nearly as possible be approximated to his perfection. *Burke.*

It is not from his form, in which we trace Strength joined with beauty, dignity with grace,

That *man*, the master of this globe, derives His right of empire over all that lives. *Cowper.*

MAN, the head of the animal creation, is a being who feels, reflects, thinks, contrives,

and acts; who has the power of changing his place upon the earth at pleasure; who possesses the faculty of communicating his thoughts by speech; and who has dominion over all other creatures on the face of the globe. Animated and enlightened by a ray from the divinity, he surpasses in dignity every material being. He spends less of his time in solitude than in society, and in obedience to those laws which he himself has framed. See HOMO; and ANATOMY, an article devoted of course to the human anatomy, principally.

The Isle of MAN is situated in the Irish Channel, within sight of the three kingdoms of England, Scotland, and Ireland, at the distance from the point of Ayre, its north point, to Beeshead in Wales, of ten leagues; from the same point of Ayre to Burrowhead in Scotland of five leagues; and from the south-west coast to Kerry Point in Ireland of nine leagues. Snaffield Hill, near the east coast, is the highest point of the island, being 1740 feet above the sea.

The island is ten leagues long, and three to four broad, containing about 30,000 inhabitants in seventeen parishes. The hilly tracts afford only pasture, but the low land is well cultivated. It has mines of iron, lead, and copper, none of which are worked; but the quarries of marble, slate, and building stone, particularly the last

two, are productive. The climate differs little from that of the north of England, and is generally healthy.

In the middle ages the Isle of Man was the rendezvous of the Scandinavian pirates, in their descents on the neighbouring coasts of Great Britain and Ireland, and the kings of Man were for some centuries masters of these seas. About 623 Alexander king of Scotland, having defeated the Danes, obliged Owen, or John, king of Man, to do homage, and the island continued tributary to Scotland till reduced by Edward I.; since when the kings of England have been the paramount sovereigns, though it continued to be governed by the descendants of its Danish princes until Edward III. dethroned the last queen, and bestowed the island as a fief on Montagu earl of Salisbury, whose honors and estate being forfeited, Henry bestowed Man first on the Percy family, which being also attainted, then on Sir John Stanley, earl of Derby, whose descendant earls of Derby enjoyed it till by failure of heirs male it devolved on the duke of Athol, as husband of the sister and heiress of the last earl of Derby.

The position of this island, between the three kingdoms, long rendered it the emporium of smuggling, on which account the British government in 1765 purchased the regalities of the island from the duke of Athol for £70,000, the duke retaining his territorial property, and the island some of its privileges, particularly that of freedom from arrest for debts contracted in England, and hence it is the asylum of many insolvent debtors. The Manks language, still spoken by the common islanders, is a corrupted Erse.

The island, besides herrings, exports some corn, cattle, butter, bacon, lead, kelp, coarse linen, and spun cotton. Barley and oats are raised in considerable quantities; and the Laughton breed of sheep in this island is admired for its wool. Poultry of all kinds is also cheap and abundant. The boats engaged in the herring fishery exceed 400 in number, and are called, collectively, the Manks fleet, and are under the command of an admiral and vice-admiral, who are annually chosen for the season, and receive a small allowance from government. These boats seldom exceed eight tons burden, and cost, with the whole of their outfit, about eighty guineas each. The fishery generally occupies 4000 or 5000 of the male population, in whose absence, their wives and children attend to the labors of the field, particularly the culture of potatoes. The fishermen shoot their nets at night, one edge being buoyed up by inflated bladders, made of dried skins, and smeared over with tar. The herrings are caught in such numbers that a boat frequently returns with 25,000 or 30,000; and one successful night's fishing, of the whole fleet, sometimes yields a produce of from £3000 to £5000 in value.

The Isle of Man is now subject to the king of England as land proprietor, and is ruled by a governor, a council of public affairs, and the house of keys, the representatives of the people. These together form what is called a Tynwald court, whose concurrence is essential to every legislative act. The members of the house of

keys are twenty-four in number. They were at one time elected by the people, but now form a permanent self-elected body. For the administration of justice, the island is divided into two districts, over which preside the two *döemsters*, or chief judges of the island, who are officers of great dignity, the one in the northern, the other in the southern division, and each holding a court of justice weekly. These districts are subdivided into six *sheadings*, over each of which is appointed a coroner, with very extensive powers, analogous in many respects to those of our sheriffs. The other courts are the court of chancery, the court of general jail delivery, the court of exchequer, the common law court, the court of admiralty, and the courts of the high bailiffs at the four towns; and from these courts an appeal lies to the house of keys, to the staff of government, and to the king in council. The whole island is under the ecclesiastical jurisdiction of a bishop, who is styled bishop of Sodor and Man, is sole baron of the isle, and possesses other important privileges. All exports to Great Britain and Ireland are duty free, as are all imports for the use of the manufactures.

Castletown, the seat of the government, is at the south-east extremity, and is a neat town with wide and clean streets: in the middle of the town is Castle Rusher, a magnificent fortress of free-stone, the ancient residence of the kings of Man. Douglas, at the mouth of a rivulet, is the most populous and commercial place in the island, having 4000 inhabitants, and a good pier haven for vessels of 500 tons. The bay also affords shelter in winds from north-west to south. There is a handsome light-house on the pier. Ramsey is a neat town of 300 houses at the north-east side of the island, at the mouth of the river Selby, which falls into a fine bay sheltered from all winds but north-east, having on the south Maughold's Head, a bold rocky promontory, under which is a celebrated well. In this bay an excellent port might be made for the largest ships, by running out a mole to a rock. Small craft enter the Selby, and lie dry at low water. Here is a light-house. Laxey is a group of cottages in a glen at the bottom of a creek, opening into an extensive bay, which might be made a good harbour. Peel, on the west side of the island on the river Neb, is a neat town of 280 houses; the south extremity of its bay is bounded by Peel Island, with a castle and the ruins of a cathedral.

Derby Haven, on the south-east end north of Castletown, is formed by St. Michael's Island, joined to the main island by a causeway 100 yards long. Off the south end of the island is the islet called the Calf of Man, three miles in circuit, and surrounded by rocks. Here a great number of sea fowl are found.

MANAAR, an island off the north-west coast of Ceylon, to which it is almost united at low water. A bank of sand also runs from it to Ramiseram, twelve leagues off, called Adam's Bridge, said by the Hindoos to have been constructed by their god Ram, when he invaded Ceylon. Between these two islands small boats constantly ply. It was occupied by the Portuguese in the year 1560, and taken from them by the

Dutch in 1658, who made it a place of banishment for criminals. Long 79° 58' E., lat. 9° 6' N.

MAN'ACLES, *n. s.* } Fr. *manicles*; Lat.
MAN'ACLE, *v. a.* } *manica*, from *manus*.

Chain for the hands; shackles: to manacle is to bind with chains.

Doctrine unto fools is as fetters on the feet, and like manacles on the right hand. *Eccclus. xxi. 19.*

For my sake wear this glove;

It is a manacle of love.

Shakespeare. *Cymbeline.*

Thou

Must, as a foreign recreant, be led

With manacles along our streets.

Id. Coriolanus.

I'll manacle thy neck and feet together.

Shakespeare.

The law good men count their ornament and protection; others, their manacles and oppression.

King Charles.

Learn, O vain men, that there is nothing but impudence, nothing but greaves and manacles in the freest sins.

Bp. Hall.

Is it thus you use this monarch, to manacle and shackle him hand and foot? *Arbuthnot and Pope.*

MAN'AGE, *v. a., v. n., & n. s.*

MAN'AGEABLE, *adj.*

MAN'AGEABLENESS, *n. s.*

MAN'AGEMENT, *n. s.*

MAN'AGER,

MAN'AGERY.

Fr. *menager*, *menagerie*; of Lat. *manu-agere*; Span. *manejar*. To conduct.

train; guide; wield; continue; govern; husband: as a neuter verb, to superintend affairs; transact: manage is an obsolete synonyme of management, which signifies, guidance; administration; and particularly able or prudent administration of affairs: managery is another (deservedly obsolete) synonyme of this signification: manage-able is tractable; easy to be managed.

He rode up and down gallantly mounted, managing his horse, and charging and discharging his lance.

Knolles.

For the rebels which stand out in Ireland,

Expedient manage must be made, my liege,

Ere further leisure yield them further means.

Shakespeare.

In thy slumbers

I heard thee murmur tales of iron wars,

Speak terms of manage to the bounding steed. *Id.*

Young men, in the conduct and manage of actions, embrace more than they can hold, and stir more than they can quiet.

Bacon.

The conditions of weapons and their improvement are, that they may serve in all weathers; and that the carriage may be light and manageable.

Id. Essays.

The horse you must draw in his career with his manage and turn, doing the curvetto. *Peacham.*

The court of Rome has, in other instances, so well attested its good managery, that it is not credible crowns are conferred gratis. *Deacy of Piety.*

They who most exactly describe that battle, give so ill an account of any conduct or discretion in the managery of that affair, that posterity would receive little benefit in the most particular relation of it.

Clarendon.

This name, or title, Sabaoth, primitively seems to import God's universal conduct and managery of all creatures.

Barrow.

This disagreement may be imputed to the greater or less exactness or manageableness of the instruments employed.

Boyle.

The fathers had managed the charge of idolatry against the heathens. *Billingsfleet.*

A prince of great aspiring thoughts: is the main a manager of his treasure, and yet bountiful, from his own motion, wherever he discerns merit.

Temple.

There is no more to manage! If I fall,

It shall be like myself; a setting sun

Should leave a track of glory in the skies.

Dryden.

Mark with what management their tribes divide; Some stick to you, and some to t'other side. *Id.*

The most severe censor cannot but be pleased with the prodigality of Ovid's wit; though he could have wished, that the master of it had been a better manager. *Id.*

Whenever we take a strong bias, it is not out of a moral incapacity to do better, but for want of a careful manage and discipline to set us right at first.

L'Estrange.

The conduct of our lives, and the management of our great concerns, will not bear delay. *Locke.*

The plea of a good intention will serve to sanctify the worst actions; the proof of which is but too manifest from that scandalous doctrine of the Jesuits concerning the direction of the intention, and likewise from the whole manage of the late rebellion.

South.

A skilful manager of the rabble, so long as they have but ears to hear, needs never enquire whether they have any understanding. *Id.*

Notwithstanding it was so much his interest to manage his protestant subjects in the country, he made over his principality to France. *Audism.*

The manager opens his sluice every night, and distributes the water into the town. *Id.*

He had great management with ecclesiastics in the view of being advanced to the pontificate.

Id. on Italy.

Let her at least the vocal brass inspire,

And tell the nations, in no vulgar strain,

What wars I manage, and what wreaths I gain.

Prior.

Long tubes are cumbersome, and scarce to be easily managed. *Newton.*

Very long tubes are, by reason of their length, apt to bend, and shake by bending so as to make a continual trembling in the objects, whereas by contrivance the glasses are readily manageable. *Id.*

Let us stick to our point, and we will manage Bul I'll warrant you. *Arbuthnot's John Bull.*

An artful manager, that crept between

His friend and shame, and was a kind of screen.

Pope.

The wrong management of the earl of Godolphin was the only cause of the union. *Suiff.*

They vault from hunters to the managed steed.

Yang.

MANASSEH, Heb. מְנַשֶּׁה, i. e. not forgotten the eldest son of Joseph, and grandson of the patriarch Jacob (Gen. xli. 50, 51.), was born A. M. 2290, and A. C. 1714.

MANASSEH, the fifteenth king of Judah, the son and successor of Hezekiah. His acts are recorded in 2 Kings xx. xxi., and 2 Chron xxxiii.

MANASSEH, THE TRIBE OF, the descendants of the patriarch. They came out of Egypt, in number 32,200 men fit for battle, upwards of twenty years old, under the conduct of Gama liel, son of Pedahzur. Numb. ii. 20, 21. This tribe was divided at their entrance into the land of Canaan. One half had its portion beyond

the Jordan, and the other half on this side of it. The half tribe of Manasseh which settled beyond the river possessed the country of Bashan, from the river Jabbok to mount Libanus (Numb. xii. 33, 34, &c.), and the other half tribe of Manasseh, on this side Jordan, obtained for its inheritance the country between the tribe of Ephraim on the south, and the tribe of Issachar on the north, having the river Jordan on the east, and the Mediterranean Sea on the west. Josh. xvi. xvii.

MANATI, in zoology. See TRICHECUS.

MANATOULAN ISLANDS, a series of islands, which stretch easterly from the western shore of Lake Superior, for 160 miles, many of them measuring from twenty to thirty miles in length, by ten, twelve, and fifteen in breadth, on some of which the land rises into considerable elevations. Long. $81^{\circ} 50'$ to $84^{\circ} W.$, lat. $45^{\circ} 20'$ to $45^{\circ} 49' N.$

MAN BORE, in the Anglo-Saxon laws, compensation for killing a man. In king Ina's laws, rates are fixed for the expiation of this crime according to the quality of the person slain.

MANCA, in English antiquity, was a square piece of gold coin, commonly valued at thirty pence: and mancusa was as much as a mark of silver, having its name from manucusa, being coined with the hand (Leg. Canut.) But the manca and mancusa were not always of that value; for sometimes the former was valued at six shillings, and the latter, as used by the Anglo-Saxons, was equal in value to our half crown. Manca sex solidis aestimetur, Leg. II. 1, c. 69. Thorn, in his Chronicle, tells us, that mancusa est pondus duorum solidorum et sex denariorum; and with him agrees Du Cange, who says, that twenty mance make fifty shillings. Manca and mancusa are promiscuously used in old books for the same money.

MANCENILLA, a large bay on the north of the island of St. Domingo, about 4000 fathoms long from west to east, and 2800 broad from north to south. The river Massacre, the former point of separation between the Spanish and French colonies on the north of the island, enters the east part of this bay, in long. $71^{\circ} 50' W.$, lat. $19^{\circ} 50' N.$

MANCENION, i. e. the place of tents, an ancient town of South Britain, which stood on the site of the present Castlefield, near Manchester. Relics of the castle wall and ditch are still visible. Knock castle was the seat of the Roman castrum. See MANCHESTER.

MANCESTER, a village in Warwickshire, anciently a Roman station on Watling Street, where ancient Roman coins are still found. It lies near Atherston.

MANCHA, LA, a central province of Spain, lying to the south of Old Castile, and to the north of Andalusia. It is surrounded with mountains, and contains an area of 8000 square miles, and 206,000 inhabitants. It is divided into the Upper and Lower La Mancha: the chief of the former being Ciudad Real, and of the latter Ocaña. It has, however, no large rivers; though traversed by the Tagus, the Guadiana, and the Xucar, for none of them are of large size in this part of their course. The interior consists almost entirely of a barren flat, without trees,

shelter, or water. The soil is a light sand, but wheat and barley are cultivated, though not sufficiently for the wants of the thinly scattered inhabitants. The Mesa is a large fertile plain, and olives and the oak thrive in some places. The quantity of wine is also pretty large. Other vegetable productions are honey, saffron, and spartum or bass-weed, which is used in making mats. The flocks of sheep and mules are numerous; but the traveller is generally conveyed in a cart drawn by oxen. The most extensive meadows lie between Ciudad Real and Santa Cruz de Mudela. Other principal towns are La Guardia, Almagro, Terrablique, and Manzanares. The minerals are silver, iron, ochre, rock crystal, calamine, antimony, and cinnabar. The chief natural curiosity is the disappearance of the Guadiana under ground. See GUADIANA. The manufactures are very limited; but the spinning of wool gives employment to nearly 16,000 persons; and the yarn is exported. Lace is made at Almagro, soap at Ocaña, and flannel at Almagro, Ocaña, and Campo de Criptana.

MANCHE, LA, or the Channel, a department of the north-west of France, taking its name from the English Channel, by which it is bounded west and north. On the south-east it joins the departments of Calvados; on the south that of Ille and Vilaine. Its superficial extent is 2500 square miles; and its population 583,500. This department, comprising the western part of Normandy, is long and narrow, and contains a number of small towns and large villages. The face of the country is but partly hilly. The principal promontory is Cape la Hague. It is watered by the Taute, Vire, Soulle, Coesnon, and Douve, and has a few small lakes and marshy tracts. The climate is temperate, but humid: the products are corn, fruit, flax, and hemp. Of mineral productions salt is the most extensive; but iron and copper are found. The department is well fitted for pasture, and accordingly rears great numbers of cattle and horses. A great quantity of cider is made, and the fisheries on the coast are prosecuted with success. The chief manufacture and export is linen; other articles of export are butter, cheese, horses, cattle, cider, and dried fruits. The department belongs to the fourteenth military division, to the diocese of Coutances, and the jurisdiction of the cour royale of Caen. It is divided into six arrondissements, viz. St. Lo (the capital), Coutances, Cherbourg, Valognes, Avranches, and Mortain; which are subdivided into forty cantons, and 668 communes. St. Lo is the capital, but Cherbourg the largest town.

MANCHESTER, a Borough town in the hundred of Salford and county of Lancaster, the chief emporium of the cotton trade, and the most considerable manufacturing town in the kingdom.

In an historical point of view, the annals of Manchester are not important. Whitaker, however, considers it to have been an ancient British station, settled 500 years before the Christian era. After the invasion of this island by the Romans, it became one of the fortified retreats of the undisciplined natives, and was called Mancenion, or 'the place of tents.' Agricola, who conquered

in A.D. 79, changed its name to Mancunium; afterwards written Manduesuedum, and Manchester. The Romans built a noble castle on the spot still called Castle Field, situated near the conflux of the Medlock and Irwell; but every vestige of the building has disappeared. After having retained it for more than four centuries, the declining fortunes of the empire compelled the Roman conquerors of Manchester to abandon it to its old possessors, who soon again yielded it to new conquerors and tyrants in the Danes and Saxons. Manchester was now several times the scene of military conflict, being seated on the confines of the Northumbrian kingdom; and Edward the Elder, king of the Mercians, fortified and rebuilt a considerable part of it. In the time of William the Conqueror, according to the Domesday survey, two churches existed here, called St. Mary's and St. Michael's; and Albert de Gresley obtained from the Conqueror the lordship of the manor. His grandson Thomas granted, in 1301, a charter to 'his burgesses of Manchester,' constituting the town a free borough. Lord de la Warr, the last male heir of this family, laid the foundation of the collegiate church in 1422, and endowed it liberally. This town was one of the eight places of sanctuary to which that privilege was confirmed by Henry VIII. But in 1541 this privilege was removed to Chester, which the statute says 'had a strong gaol and a mayor, and had not the wealth, credit, great occupancies, and good order which Manchester had.' On the breaking out of the civil wars of Charles I.'s reign, Manchester espoused the cause of the parliament, and resisted several sieges of the royal army. The inhabitants, however, seem to have rejoiced heartily in the restoration of Charles II.

The present town stands on both sides of the river Irwell, which receives the Irk at the north-west angle of the town, near the collegiate church. Salford is a distinct township, the Southwark of Manchester, with which it communicates by three bridges. The Old, 'Hanging,' or Salford Bridge, is supposed to have been a Roman foundation: the principal part of it was erected in the time of Edward III.; but in 1778 it underwent a thorough repair. There is Back-friars Bridge of wood, flagged with stone, for foot passengers only: and a very superior structure, called the New Bailey Bridge, which was founded in 1785, and constructed wholly of stone. It consists of three large arches, and a fourth of smaller dimensions, left open in support of the duke of Bridgewater's right to a towing path: in 1822 an act of parliament was obtained for improving Market Street, and building a fourth bridge across the Irwell from Water Street. There are six bridges also across the Irk, and nine over the Medlock, which runs through the south suburb: various other bridges cross branches of the canal navigation, which penetrate the town; and at Knotmill, near the Castle-field, is a noble tunnel, through which the Rochdale Canal passes. The town altogether is about two miles and a half long, by two wide; divided into fourteen parochial districts. It did not contain a fifth part of its present population, nor a twentieth part of its present wealth, at the commencement of the eighteenth century.

The Old Town is a motley assemblage of narrow streets and new and old houses: even the streets of modern parts of Manchester have been injudiciously restricted in breadth; but, among the latter, Portland Place and Grosvenor Square rival those of London itself; *Mosley Street is also of imposing appearance, and Ardwick Green, and Salford Crescent, are pleasant and genteel residences.

The collegiate church is a handsome structure in the richer Gothic style, ornamented with a beautiful carved roof, rich remains of painted windows, and several family chapels and chantries. The collegiate body consists of a warden, four fellows, two chaplains, two clerks, four choristers, and four singing men; and the great rise in the appropriated property has rendered it a very opulent ecclesiastical establishment. St. Mary's church is also an elegant structure, built originally at the expense of the clergy of the collegiate church: the spire is much admired. The lantern is particularly striking, being composed of eight noble Ionic pillars, surmounted by a large globe, upon which is placed a massy cross. St. John's church is in the modern Gothic style. In the vestry are several pictures, and a beautiful window of stained glass. Two of the windows in the body of the church have also fine painted glass. Other churches worth notice are St. Paul's in Turner Street; St. James's in George Street; St. Michael's in Angel Street; St. Clement's in Lever Street; St. Stephen's near Bolton Street; St. George's near Newton Lane; and St. Peter's, which terminates the prospect down Mosley Street. At Salford are Trinity church and St. Stephen's, besides a spacious Catholic chapel, Friends' meeting-house, and chapels, as in Manchester, for all the principal Dissenting denominations.

The various excellent charitable institutions of Manchester evince that the benevolence and public spirit of its inhabitants have fully equalled their mercantile prosperity. Among these, Chetham's Hospital, commonly called the College, is first deserving of notice. It owes its existence and chief support to the munificent bequest of Humphrey Chetham, esq., of Clayton, by will dated the 16th of December 1651. The number of boys clothed and educated here amounted at first only to forty; but, from an increase in the value of the estates, the number was augmented more than forty years ago to eighty. The hospital is situated on a lofty rock, near the confluence of the rivers Irk and Irwell, immediately adjoining the collegiate church on the spot, where as Mr. Whitaker supposes, was placed the Roman prætorium, or summer camp. Here is a public library, founded by Mr. Chetham, which now contains upwards of 15,000 volumes in almost every branch of science or literature, besides some valuable MSS. The infirmary, dispensary, lunatic hospital, and asylum, are included in one spacious building, in Lever's Row, the foundation of which was laid in 1753, for the reception of forty patients; but the number was soon afterwards doubled. The lunatic hospital was opened in 1766; the dispensary in 1792; the lying-in hospital in 1790. The annual subscriptions, for the support of these insti-

tutions, amount to several thousand pounds. Here are also two poor-houses, one of which was erected in 1792, on the side of the Irk, nearly opposite the college; and the other built the year following, at the upper end of Greengate in Salford. Both of them are fine buildings, and admirably fitted up. The free grammar school, endowed by Ilugh Oldham, bishop of Exeter, and a native of Manchester bears the name and appearance of a college. The new prison is a spacious building, erected on the plan of the philanthropic Howard.—Nor is Manchester deficient in literary institutions. Of the latter description is the literary and philosophical society, which was instituted in 1781, and has published several volumes of valuable Memoirs.

In 1767 was established the Manchester Agricultural Society; it publishes annual reports of its premiums. Institutions connected with the public business of the town are, the exchange, a very fine and spacious Doric building, fronting the market-place in Exchange Street, and erected by subscription in 1808. In the lower floor is the news-room, a magnificent hall, comprising an area of 4060 feet. The upper rooms, for public dinners, meetings, &c., are on a noble scale. The portico is a beautiful Ionic building, built in 1803, and much frequented by professional gentlemen; it contains a very commodious news-room. The theatre is a very neat building, and the company which performs very respectable. The circus, for equestrian exhibitions, is also a handsome erection. Here are two market-places, the old and the new, which are well supplied on Tuesdays and Saturdays; the latter is the principal, the former being mostly for transacting the manufacturing business of the town and country traders. The town is abundantly supplied with water from a reservoir, about two miles from the market-place, containing, when full, upwards of 212,000 tons of water.

Of the manufactures, to which Manchester owes its opulence, by far the principal, and the source of most of the rest, is that of cotton; of which the raw material is transported hither upwards of 2000 miles, most of it to be returned, in a finished state, to the place of its production. To perform its various operations, this trade has given birth in this place to the greatest and most complete system of machinery that ever existed; and which besides employs, next to agriculture itself, more people than any other trade in the kingdom. Manchester is also the general depôt from which the raw material is distributed through all parts of the district, and in which all this scattered merchandise is again collected, when finished, into a centre, to be again expanded over a wider circle; to be sent to Hull, Liverpool, and London, and thence all over the world.

The principal articles of manufacture here at present are velvets, velverets, fustians, dimities, calicoes, checks, tickings, jeans, shirtings, gingham, quiltings, handkerchiefs, nankeens, diapers, muslins, muslins, cambrics, and every kind of fancy cotton, and cotton and silk goods. The spinning trade is becoming every year more extensive, and almost entirely performed by machinery, aided by a number of boys and girls. The

cotton, carried to the mill in its rudest state, is made to pass through a succession of rollers, spindles, &c., and to undergo the various operations of cleaning, carding, drawing, stretching, and twisting, until the mass of chaotic fibres comes out a continuous thread of the utmost fineness, of very great strength, and of value augmented a thousand fold. Weaving is also carried on to a great extent; and power-looms, worked by machinery, have extended it considerably. Even the erection and keeping up of this various and complicated machinery is itself a source of very great business, and gives rise to iron foundries, steam engine, and other factories, and works of a similar kind, as well as to the invention even of new machines. Of these the wire-card manufactory is one of the most curious. The printing, dyeing, and bleaching businesses are also carried on to a very great extent in and around Manchester; the hat manufacture, and several well-managed sulphuric acid, or oil of vitriol works. The silk manufacture has also been taken up here of late with great spirit.

Manchester is now a borough, sending two members to parliament; the government being vested in a headborough, called the boroughreeve, and two constables. These are chosen annually by a jury impanelled by the steward of the manor, at the courts leet, which are held by the lord of the manor twice every year, at Easter and Michaelmas. The boroughreeve is usually one of the gentlemen who have served as constables for the preceding year. His chief duty is to preside at elections of members, and to distribute certain charities, all the judicial functions connected with the police being executed by the constables and deputies. A court of requests is held every month for the recovery of small debts; and every Wednesday and Saturday respectable magistrates sit in the court-room of the New-Bailey for the administration of justice in pleas of almost every description, whether civil or criminal. Quarter sessions also are held four times a-year. Manchester is 186 miles from London, and 32 miles from Liverpool, by the rail-road. (See LIVERPOOL.)

MANCHESTER HOUSE, a factory of the Hudson Bay Company, 100 miles west of Hudson's-house, and seventy-five south-east of Buckingham-house, in the north-west part of North America. It stands on the south-west side of Saskashawan River. Long. 109° 20' W., lat. 53° 14' 18" N.

MAN'CHET, *n. s.* Fr. *manchet*.—Skinner: or more probably from Fr. *manche*, a sleeve. A small loaf of fine bread.

Take a small toast of *manchet*, dipped in oil of sweet almonds.

I love to entertain my friends with a frugal collation: a cup of wine, a dish of fruit, and a *manchet*.

More's Dialogues.

MANCHINEEL TREE. See HIPPOCAMPANE.

MANCIPATE, *v. a.* Lat. *mancipio*. To MANCIPATION, *n. s.* § enslave; bind; tie.—Seldom used.

Although the regular part of nature is seldom varied, yet the meteors, which are in themselves more unstable, and less *mancipated* to stated motions, are oftentimes employed to various ends.

Itale.

MANCIPATIO, a term used in the ancient Roman law, which may be thus explained:—Every father had such a regal authority over his son, that, before the son could be released from his subjection and made free, he must be three times over sold and bought, his natural father being the vender. The vendee was called *pater fiduciarius*. After this fictitious bargain, the *pater fiduciarius* sold him again to the natural father, who could then, but not till then, manumit or make him free. The imaginary sale was called *mancipatio*; and the act of giving liberty or setting him free after this was called *emancipatio*.

MANCIPATIO also signifies the selling or alienating of certain lands for money paid by weight, in the presence of five witnesses. This mode of alienation took place only among Roman citizens, and that only in respect to certain estates situated in Italy, which were called *mancipia*.

MANCIPLE, *n. s.* Lat. *mancipis*. The steward, or purveyor of a community, particularly used of the purveyor of a college.

A gentil *manciple* was ther of a temple
Of which achatours mighten take ensample
For to ben wise in bying of vitaille.

Chaucer, *Cant. Tales*.

Their *manciple* fell dangerously ill,
Bread must be had, their griet went to the mill:
This simkin moderately stole before,
Their steward sick, he robbed them ten times more.
Betterton's Miller of Trompingham.

MANCIPLE means also a clerk of the kitchen. An officer in the inner temple seems anciently to have been so called, according to the above extract from Chaucer, the ancient English poet, some time a student of that house.

MANCUS (from *manu cusus*), in antiquity, an Anglo-Saxon gold coin, equal in value to two solidi, and a half, or thirty pence, and in weight to fifty-five Troy grains. The first account of this coin that occurs in English history is about the close of the eighth century, in an embassy of Kenwulf king of Mercia, to Leo III., requesting the restoration of the jurisdiction of the see of Canterbury: this embassy was enforced by a present of 120 mancuses. Ethelwolf also sent yearly to Rome 300 mancuses; and these coins are said to have continued in some form or other till towards the conclusion of the Saxon government. The heriots of the nobility are chiefly estimated by this standard in Canonic laws. It came originally from Italy, where it was called ducat; and is supposed to have been the same with the drachma or miliarensis current in the Byzantine empire.

A **MANDAMUS** issues out of the court of king's bench, and is sent to a corporation, commanding them to admit or restore a person to his office. This writ also lies where justices of the peace refuse to admit a person to take the oaths to qualify himself for any post or office; or where a bishop or archdeacon refuses to grant a probate of a will, to admit an executor to prove it, or to swear a churchwarden, &c.

MANDANES, an Indian prince and philosopher, who, for the renown of his wisdom, was invited by the ambassadors of Alexander the

Great to the banquet of the son of Jupiter. A reward was promised him if he obeyed, but he was threatened with punishment in case of a refusal. Equally unmoved by both, the philosopher dismissed them with observing, that, though Alexander ruled over a great part of the universe, he was not the son of Jupiter, and that he cared not for the presents of a man who possessed not wherewithal to content himself. 'I despise his threats,' added he; 'if I live, India is sufficient for my subsistence, and to me death has no terrors; for it will only be an exchange of old age and infirmity for the happiness of a better life.'

MANDARINS, a name given to the magistrates and governors of provinces in China, who are chosen out of the most learned men, and whose government is always at a great distance from the place of their birth. See **CHINA**.

MAN'DATARY, *n. s.* Latin, *mando*, to command. A **MAN'DATARY**, *adj.* datary is an ecclesiastic, to whom the pope has by his prerogative given a mandate for his benefice: mandate is command; precept; commission; charge: mandator, director; commander: mandatory, of the nature of a command.

Her force is not any where so apparent as in express *mandates* or prohibitions, especially upon advice and consultation going before. Hooker.

Who knows,

If the scarce-bearded Caesar have not sent

His powerful *mandate* to you.

Shakespeare.

This Moor,

Your special *mandate* for the state affairs,

Hath hither brought.

Id. Othello.

The necessity of the times cast the power of the three estates upon himself, that his *mandates* should pass for laws, whereby he laid what taxes he pleased. Howell's *Vocal Point*.

He thought the *mandate* forged, your death concealed. Dryden.

This dream all-powerful Juno sends, I beat
Her mighty *mandates*, and her words you hear. Id.

A person is said to be a client to his advocate, but a master and *mandator* to his proctor. Auliffe.

MANDATE, in the canon law, a rescript of the pope, commanding an ordinary collator to put the person therein named in possession of the first vacant benefice in his collation.

MANDATS, or **MANDATS TERRITORIAUX**, a species of paper currency issued by the French government, to supply the place of the assignats, in March 1796, when they had lost credit and suffered an enormous depreciation. See **ASSIGNATS**. To prevent jobbing, they were ordered to be taken at par with specie; and instead of resting their credit on the whole national property, as the assignats had been, they were bottomed upon so much of it as was equivalent in value to the amount of the *mandats* issued. A list of the lands thus appropriated, which could be immediately acquired by the holders of *mandats*, was printed, and copies dispersed through the republic. The *mandats* thus operated a temporary restoration of the credit of the republic.

MANDATUM, in Roman antiquity, was a fee or retainer given the procuratores and advo-

cati. It was a necessary condition, without which they had not the liberty of bleeding.

MANDAVIA, a large and strong town of Hindostan, in the province of Cutch, on the north-east shore of the Indian Ocean. It carries on trade with Bombay and Arabia, in clarified butter, grain, and cotton; its principal imports are sugar, pepper, spices, raw silk, and piece goods. It is subject to the Balooch chief of Cutch.

MANDELIQUE, **MANDALIG**, or Devil's Rock, an island about half a league from the north coast of Java. In the east monsoon ships are detained long here by contrary winds. The passage between this and the coast has three and a half or four fathoms water; but is too narrow to be safe. Long. 110° 56' E., lat. 6° 27' S.

MANDEVILLE (Bernard de), M. D., an eminent writer of the eighteenth century, born in Holland, where he studied physic, and took his degree. He afterwards came over into England, and in 1714 published a poem, entitled *The Grumbling Hive, or Knaves turned Honest*; he afterwards re-published it with additions, under the title of *The Fable of the Bees, or Private Vices made Public Benefits*; with an Essay on Charity and Charity Schools, and a Search into the Nature of Society. This book was presented by the jury of Middlesex in July the same year, and severely animadverted upon, in *A Letter to the Right Hon. Lord C.*, printed in the *London Journal of Saturday, July 27, 1723*. Our author published a *Vindication*. His book was attacked by several writers. He published other pieces, and died in 1723.

MANDEVILLE (Sir John), an English physician, celebrated for his travels, was born at St. Alban's, about the beginning of the fourteenth century. He had a liberal education, and left England in 1332. He did not return till 1364. His friends, who had long supposed him dead, did not know him when he appeared. He had travelled through almost all the east, and made himself master of a great variety of languages. He particularly visited Scythia, Armenia the Greater and Less, Egypt, Arabia, Syria, Media, Mesopotamia, Persia, Chaldea, Greece, Dalmatia, &c. His disposition even after this did not suffer him to rest; for he left his own country a second time, and died at Liege in the Netherlands in 1372. He wrote *An Itinerary, or an Account of his Travels*, in English, French, and Latin, so amply stored with marvellous relations and events, that the name of Mandeville is become proverbial for a fabulous and exaggerating traveller. But what he himself observed is worth attention; and he makes many remarks which show an able and scientific mind.

MANDEURE, a town of France, in the late principality of Montbeliard, anciently the capital of the Mandubii; five miles south of Montbeliard; now in the department of the Maritime Alps.

MANDIBLE, *n. s.* Lat. *mandibula*, *man-*
MANDIBULAR, *aduco, of mando, to chew.*
MANDUCATE, *v. a.* The jaw: mandibular is
MANDUCATION, relating, or belonging to,
the jaw: manducate, to chew; eat.

Either we *manducate* the accidents only, or else substance of bread, or the substance of Christ's body. If we *manducate* only the accidents, then how do we eat Christ's body? If we *manducate* bread, then 'tis capable of all the natural alterations, and it cannot be denied.

Jer. Taylor.

As he who is not a holy person does not feed upon Christ, it is apparent that our *manducation* must be spiritual, and therefore so must the food, and consequently it cannot be natural flesh.

Taylor's Worthy Communicant.

He saith only the crocodile moveth the upper jaw, as if the upper *mandible* did make an articulation with the cranium.

Gfaw.

Manducation is the action of the lower jaw in chewing the food, and preparing it in the mouth before it is received into the stomach.

Quincy.

MANDING, or **MANDINGO**, a territory of Central Africa, bounded on the east by Bambarra, on the north by Fooladoo, and on the south and west by Gadou and Jallonkadoo. The country is hilly, rocky, and barren, and contains no town of consequence, except Kamalia. Gold dust is found in the sands of the rivers, which the women extract by agitation. The whole region is watered by the Niger, and Mr. Park was told that the source of that river was at Sankari, in Manding. It is divided into a number of small republics, each village, with a territory around it, being nearly independent.

The Mandingoes, who derive their name from this territory, are widely spread over other parts of Africa, and are, perhaps, the most numerous race of negroes in the western regions of that continent. They are tall, slender, and not so bright a black as the Jaloffs. Though subject to few diseases they seldom attain old age. A gay, lively, inquisitive, and credulous people; like their neighbours, the Jaloffs, they are very dexterous in appropriating any thing which they fancy to their own use. The females appear to be distinguished by kindness and humanity. Many of the Mandingoes are Mahommedans, and in most of their towns there are two public buildings, the mosque, and a large kind of stage, under some tree, where the common business of the village is transacted. Their houses consist of a circular wall of earth, about four feet high, roofed with bamboo, and covered with grass or leaves. Polygamy is common; and, as each wife has a separate hut, several generally belong to the same family, and the group is usually enclosed with a fence. Both sexes among the Mandingoes are further removed from barbarism than many of the other tribes, and are clothed in cottons of their own manufacture. The dress of the men consists of a loose shirt or frock, with drawers, a cap, and sandals. The females make use of two pieces of cloth, one of which they wrap round the waist, the other is thrown over the shoulders. Besides their common domestic avocations, they are employed in dressing and spinning cotton, which is woven into cloth, and dyed of a rich permanent blue, by means of indigo. The men are partially occupied in agriculture, hunting, and fishing. Many of them are also engaged in commerce, and almost every district of Western Africa is traversed by troops of Mandingo merchants. Their language is, therefore, widely diffused, and is one of the most copious and po-

lished of the negro dialects. They are said to have bards who sing the praises of their chiefs. The taste of the negroes, and particularly the Mandingoes, for poetry of the most simple and plaintive kinds, has been proved by many examples; but it will be sufficient to refer to that well-known song, on 'the poor white man, faint and weary,' sung extempore over the distressed Park. The only regular trades among them are working in leather and metals, both of which they execute with dexterity. Many of those who have not become converts to the faith of Mahomet seem to have some notion of a Supreme Being, and a future state of rewards and punishments; but on this, as well as on all abstract subjects, their ideas are but confused.

MANDINGA, a river of Panama, South America, which runs east until it enters the large and well-sheltered bay of Mandinga. There is a settlement of the same name on the banks of the river, where there is a watch-tower, to give notice to the governor of Panama of vessels that may appear.

MANDIOLY, one of the Gilolo Islands, in the Eastern Seas. It is of a semicircular form, and may be estimated at twenty miles in length by four the average breadth. It is separated from the west coast of Gilolo, by the straits of Patientia. The equinoctial line crosses near the centre. Long. 124° E.

MANDOE, **OLD** and **NEW**, two small islands belonging to Denmark, on the west coast of Sleswick. Long. 8° 32' E., lat. 55° 10' N.

MANDOW, or **MUNDU**, a district of Hindostan, in Malwah, situated among the Vindaya Mountains, between the twenty-second and twenty-third degrees of northern latitude. It is much infested by freebooters; on which account it is not so well cultivated. Its chief towns are Mundu, Bajulpoor, and Dectan.

MANDOW, or **MUNDU**, the capital of the above district, and formerly the capital of an Afghaun dynasty. With its suburbs and gardens, it was once twenty-two miles we are told in circumference. The fortress, situated on a mountain, formerly contained many handsome monuments and mosques. In 1534 it was attacked by the emperor Homayon, and during the night, 300 Moguls having scaled the walls, the garrison, consisting of several thousand men, took flight. The works are now fallen much to decay, and the town is in ruins. Twenty-five miles south of Oujein.

MANDRAGORA, in botany. See **ATROPA**.
MANDRAGORITIS, a surname of Venus.

MANDRAKE. Lat. *mandragora*; Greek *μανδραγόρας*. A plant. See below.

And Reuben went, in the days of wheat harvest, and found *mandrakes* in the field. Gen. xxx. 14.

Not poppy, nor *mandragora*,
Nor all the drowsy syrups of the world,
Shall ever med'cine thee to that sweet sleep.

Shakespeare.

And shrieks like *mandrakes*, torn out of the earth,
That living mortals, hearing them, run mad. Id.

Among other virtues, *mandrake* has been falsely celebrated for rendering barren women fruitful: it has a soporific quality, and the ancients used it when they wanted a narcotick of the most powerful kind.

Hill's Materia Medica.

MANDRAKE, in botany. See **ATROPA** and **MUSA**.

MANDREL, *n. s.* Fr. *mandrin*. An instrument to hold in a lathe the substance to be turned.

Mandrels are made with a long wooden shank, to fit stiff into a round hole that is made in the work that is to be turned; this *mandrel* is a shank, or pin-
mandrel. Moson.

A **MANDREL** is a kind of wooden pulley, and member of the turner's lathe. Of these there are several kinds; as flat mandrels, which have three or more little pegs or points near the verge, and are used for turning flat boards on. Pin mandrels, which have a long wooden shank to fit stiff into a round hole made in the work to be turned. Hollow mandrels, which are hollow of themselves, and used for turning hollow work. Screw mandrels, &c.

MANDURIA, an ancient town of Naples, in the Basilicata. It was formerly called Casale Nuovo, which name it retained till 1790, when the inhabitants petitioned the king to change it to the ancient name of Manduria. It suffered in 1783 severely from an earthquake. Inhabitants 4000. Six miles north-east of Cassano.

MANDUBIL, a people of Gaul, who inhabited the country afterwards called Burgundy. Many of them served in Cæsar's army. Cæs. de Bell. Gall. 5, c. 20.

MANDUBRATIUS, a British prince, who joined Cæsar in Gaul, his father being killed by Cassibelan.

MANE, *n. s.* } Goth. and Belg. *maen*;
MANED, *adj.* } Teut. *mahne*; Swed. *man*;
Dan. *man*. (Goth. *maen*, is the neck). The flowing hair of horses', and other animals' necks.

A currie comb, *mane* come, and whip for a *mane*.

Tucker.

Dametas was tossed from the saddle to the *mane* of the horse, and thence to the ground.

Sidney.

The horses, breaking loose, ran up and down with their tails and *manes* on a light fire.

Knollys.

When his eyes did her behold,

Her heart did seem to melt in pleasures *manifold*.

Speiser.

For, quitting both their swords and reins,

They grasped with all their strength the *manes*.

Hudibras.

A lion shakes his dreadful *mane*,

And angry grows.

Waller.

MAN-EATER. See **ANTHROPOPHAGI**, and **CANNIBAL**.

MANES, *n. s.* Lat. *manes*. Spirit; ghost; shade. See below.

Hail, O ye holy *manes*! hail again,

Paternal ashes!

Dryden's Virgil.

MANES, or **MANICHEUS**, one of the Persian Magi, who, having embraced Christianity, mingled his own philosophical opinions with its doctrines, and thus became the founder of the Manichæan system. See **MANICHÆI**. *Manes* flourished about A.D. 277. St. Epiphanius says, his original name was Cubricus, and that he changed it for *manes*, which, in the Persian or Babylonish language, signifies vessel. A rich widow, whose servant he had been, dying without issue, left him her fortune; after which he assumed the title of the apostle or envoy of Jesus

Christ. He next assumed that of the Paraclete, whom Christ had promised, and which Augustine explains by saying, that Manes endeavoured to persuade men, that the Holy Ghost did personally dwell in him with full authority. He left several disciples, and among others Addas, Thomas, and Hermes. These he sent in his lifetime into several provinces to preach his doctrine. Manes, having undertaken to cure the son of Sapor king of Persia, and not succeeding, was put in prison upon the young prince's death, whence he made his escape; but was apprehended soon after, and flayed alive. However, the oriental writers, cited by D'Herbelot and Hyde, tell us, that Manes, after having been protected in a singular manner by king Hormizdas, who succeeded Sapor, but who was not able to defend him against the united persecutions of the Christians, the Magi, the Jews, and the Pagans, was shut up in a strong castle to preserve him from his enemies. They add, that after the death of Hormizdas, Varanes I., his successor, first protected Manes, but afterwards gave him up to the fury of the Magi, whose resentment against him was owing to his having adopted the Sadducean principles, as some say; while others attribute it to his having mingled the tenets of the Magi with the doctrines of Christianity. However, it is certain that the Manicheans celebrated the day of their master's death. St. Epiphanius gives a catalogue of several pieces published by Manes, and adds extracts out of some of them. These are the *Mysteries*, Chapters, Gospel, and Treasury.

MANES is a poetical term, signifying the shades or souls of the deceased. The heathens used a variety of ceremonies and sacrifices to appease the manes of those who were deprived of burial. See *LEMURES*.

MANES DII were the same with Inferi, or the infernal gods, who tormented men; and to these the heathens offered sacrifice to assuage their indignation. The heathen theology is a little obscure with regard to the gods manes. Some hold, that they were the souls of the dead; others that they were the genii of men; which last opinion suits best with the etymology of the word. The heathens, in fact, used the word in several senses; sometimes for ghosts of the departed, sometimes for the infernal or subterraneous deities; and in general for all divinities that presided over tombs. The evocation of manes of the dead seems to have been very frequent among the Thessalians; but it was expressly prohibited by the Romans. See *LARES*.

MANETHO, an ancient Egyptian historian, who pretended to take his history from the sacred inscriptions on the pillars of Hermes Trismegistus. He was high priest of Heliopolis under Ptolemy Philadelphus, at whose request he wrote his history in Greek, beginning from their gods, and continued it down to near the time of Darius Codomanus. His history of Egypt is a celebrated work, often quoted by Josephus and other ancient authors. Julius Africanus gave an abridgment of it in his *Chronology*. Manetho's work is however lost; and there only remain some fragments, extracted from Julius Africanus, which are to be found in Eusebius's *Chronica*.

MANFREDI (Eustace), a celebrated mathematician, born at Bologna in 1674, where he was elected mathematical professor in 1698. He was made a member of several academies, and acquired great reputation by his *Ephemerides*, 4 vols. 4to, as well as by other works. He died in 1739.

MANFREDONIA, a town of Naples, in the Capitanata, on the bay of Manfredonia. It was founded in the thirteenth century, has a good harbour, and exports corn. Population 5000. 110 miles W. N. W. of Naples.

MANGALORE (Codeal Bunder) is a large town of Hindostan, in the province of Canaro, built round the shores of a peninsula, in the elevated centre of which is a citadel. This peninsula projects into an extensive salt lagoon, separated from the sea by a narrow beach of sand, in which was formerly an opening capable of admitting vessels of burden, but recently this channel has diminished in depth, so as to admit only vessels of ten feet; and a second one has been formed, which has still less water. The lake abounds with fish. Two peaked hills rise behind it, called by seamen the Ass's Ears. Mangalore was the chief port of Tippoo's dominions, where his navy rendezvoused, and which at one time consisted of several frigates, besides line-of-battle ships building. It chiefly exports rice by Arab vessels to the Persian Gulf and Red Sea, pepper, areka, &c. Ulala is a large town on the south shore of the lagoon of Mangalore. Mangalore was early known to the Arabs; but does not appear to have been subject to the Mahomedan power in India until 1763, when it was taken by Hyder Aly. The British took it once from Hyder (in 1768), and once from Tippoo (1783), but it was restored. It came finally into our possession in 1799, and is the station of a judge, collector, &c., of South Canaro.

MANGANESE, a metal of a dull whitish color when broken, but which soon grows dark by oxidation, from the action of the air. It is hard and brittle, though not pulverisable, and rough in its fracture; so difficultly fusible, that no heat yet exhibited has caused it to run into masses of any considerable magnitude. Its specific gravity is 8.0. When broken in pieces, it falls into a powder by spontaneous oxidation.

Manganese, heated in oxygen or chlorine, takes fire and forms an oxide or chloride. It has been thought difficult to decide on the oxides of manganese. According to Sir H. Davy there are two oxides only, the olive and the black; Mr. Brande has three, the olive, dark red, and black; M. Thenard has four, the green, the white (in the state of hydrate), the chestnut-brown, and the black; Berzelius has five, the first gray, the second green, the third and fourth are not well defined, and the fifth is the black.

Two oxides, however, are well known.

1. The first oxide may be obtained by dissolving common black manganese in sulphuric or nitric acid, adding a little sugar, and precipitating by solution of potash. A white powder is obtained, which being heated to redness, out of the contact of air, becomes yellow, puce-colored, and lastly red-brown. To be preserved, it should

be washed in boiling water, previously freed from air, and then dried by distilling off the moisture in a retort filled with hydrogen. The dark olive oxide, when examined in large quantities, appears almost black; but when spread upon white paper, its olive tint is apparent. It takes fire when gently heated, increases in weight, and acquires a browner tint. It slowly absorbs oxygen from the air, even at common temperatures. It dissolves in acids without effervescence. The white powder obtained above is the hydrated protoxide. The different tints which it assumes by exposure to air are ingeniously supposed by Sir H. Davy to depend on the formation of variable quantities of the black-brown oxide, which probably retains the water contained in the white hydrate, and is hence deep puce-colored.

2. The black peroxide. Its specific gravity is 4. It does not combine with any of the acids. It yields oxygen when heated; and by intense ignition passes in a great measure into the protoxide. According to Sir H. Davy, the olive oxide consists of—

Manganese	. . . . .	79
Oxygen	. . . . .	21

And the black oxide of—

Manganese	. . . . .	69
Oxygen, about	. . . . .	31

He considers the first as a deutoxide, whence the prime equivalent is inferred to be 7.533.

The olive oxide	. . . . .	7.533 met. + 2 ox.
Or	. . . . .	80 + 20
The black oxide will be	. . . . .	7.533 + 3
Or	. . . . .	71.5 + 28

The compound of the first with water is a deutohydrate, or 7.533 + 2.25 w.

The olive oxide becomes green by the action of potash, whence Sir H. accounts for the mistakes of chemists relative to a green oxide. See CAMELEON MINERAL.

By Dr. Thomson's experiments, with which Dr. Ure's also agree, the protoxide consists of 3.5 metal + 1 oxygen; the second of 4.5 + 2; whence the prime equivalent appears to be 3.5.

The chloride may be conveniently obtained by igniting the muriate of manganese. It thus appears as a pale pink-colored substance, semi-transparent, and in brilliant scales. According to Dr. John Davy it is a compound of 3.766 metal + 4.5 chlorine.

Sir H. Davy is inclined to believe that the olive oxide is the only one which enters into combination with vitrifiable substances.

The salts of manganese have been little studied. They are mostly soluble in water.

Ferropussate of potash gives a white precipitate.

Hydrosulphuret	. . . . .	white
Sulphureted hydrogen	. . . . .	0
Gallic acid	. . . . .	0
Succinate and benzoate of ammonia	. . . . .	0

Concentrated sulphuric acid attacks manganese, at the same time that hydrogen gas is disengaged. If sulphuric acid be added, and drawn off by distillation several times from the black

oxide, by a heat nearly approaching to ignition, in a glass vessel; it is found that oxygen gas is disengaged toward the end of each process, and part of the oxide is dissolved. The solution of the sulphate made from the metal itself is colorless. If it be made from the black oxide, it is a purplish-red; but this color is destroyed by the light of the sun, and again restored by removing the solution into the dark. Sulphurous acid dissolves the oxide, taking part of its oxygen, which converts it into sulphuric acid, thus forming a sulphate with the remaining oxide. Nitric acid dissolves manganese with effervescence, and the escape of nitrous gas. A spongy, black, and friable matter remains, which is a carburet of iron. The solution does not afford crystals. The oxide is more readily soluble in nitrous acid. Manganese is dissolved in the usual manner by muriatic acid. The solution of manganese in muriatic acid scarcely affords crystals; but a deliquescent saline mass by evaporation, which is soluble in alcohol. In the dry way, the oxide of manganese combines with such earths and saline substances as are capable of undergoing fusion in a strong heat. These experiments are most advantageously performed by the Blow-Pipe, which see. This metal melts readily with most of the other metals, but rejects mercury. Gold and iron are rendered more fusible by a due addition of manganese; and the latter metal is rendered more ductile. Copper becomes less fusible, and is rendered whiter, but of a color subject to tarnish.

The ore of manganese, which is known in Derbyshire by the name of black wadd, is remarkable for its spontaneous inflammation with oil. It is of a dark brown color, of a friable earthy appearance, partly in powder, and partly in lumps. If half a pound of this be dried before a fire, and afterward suffered to cool for about an hour, and it be then loosely mixed or kneaded with two ounces of linseed oil; the whole, in something more than half an hour, becomes gradually hot, and at length bursts into flame. This effect wants explanation. It seems, in some measure, to resemble the inflammation of oils by the nitric acid.

Manganese was used chiefly by glass-makers and potters, but the important discovery of chlorine has greatly extended its utility. See BLEACHING, AND CHEMISTRY.

MANGE, *n. s.* } *Fr. demangeaison*, itching.

MANGY, *adj.* } The itch or scab in cattle.

The sheep died of the rot, and the swine of the mange. *Ben Jonson.*

Away thou issue of a mangy dog!
I swoon to see thee.

Shakespeare. Timon of Athens.
Tell what crisis does divine
The rot in sheep, or mange in swine?

Hudibras.

MANGE. Dogs are subject to the mange from being fed too high, and allowed no exercise or any opportunity of refreshing themselves with dog-grass; or by being starved at home, which will cause them to eat the vilest stuff abroad, such as carrion, or even human excrement; or by want of water, and sometimes by not being kept clean in their kennel, or by foundering and melting in

their grease. Any of these will heat the blood to a great degree, and make them mungy. The cure may be effected by giving brimstone, powdered fine, either in milk or mixed up with butter, and rubbing them well every day for a week with an ointment made up of some of the brimstone and pork lard, to which add a small quantity of oil of turpentine. Or, boil four ounces of quicksilver in two quarts of water to half the quantity; bathe them every day with this water, and let them have some of it to lick till the cure is perfected. Or, a small quantity of trooper's ointment rubbed on the parts on its first appearance will cure it. It will also free lousy puppies from their lice. Or, take two ounces of euphorbium, flour of sulphur, Flanders oil of bays, and soft soap, each four ounces. Anoint and rub the dog with it every other day; give him warm milk, and no water. The cure will be performed in about a week. Or, take two handfuls of wild cresses, and as much elecampane, and also of the leaves and roots of roerb and sorrel, and two pounds of the roots of fodrels; boil these well together in lie and vinegar; strain the decoction, and put into it two pounds of gray soap, and when it is melted rub the dog with it four or five days, and it will cure him.

MANGEART (Thomas), a Benedictine of the congregation of St. Vanne and St. Hidulphe, whose learning was an ornament to his order, and procured him the offices of antiquarian, librarian, and counsellor, to Charles duke of Lorraine. He was preparing a very considerable work, but died, A. D. 1763, before he had quite finished it; and it was then published by abbé Jacquin, in 1763; entitled *Introduction à la Science des Medailles, pour servir à la connoissance des Dieux, de la Religion, des Sciences, des Arts, et de tout ce qui appartient à l'Histoire ancienne, avec les preuves tirées des Medailles*. The elementary treatises on the numismatic science were not sufficiently extensive, and the particular dissertations were by far too prolix. His work may serve as a supplement to Montfaucon's *Antiquity Explained*. He likewise wrote a volume of *Sermons*; and a *Treatise on Purgatory*; Nancy, 1739, 2 vols. 12mo.

MANGEEA ISLAND, an island of the South Pacific Ocean, south of Wateoo, in long. 201° 53', and lat. 21° 57' S., is five leagues in circuit, rising in the middle to hills, visible ten leagues. The south-west shore is composed of cliffs of sand-stone ten feet high, with many caverns worn by the sea. The north shore is composed of broken land, with ravines and intervals of sandy beach. Captain Cook found neither anchorage nor landing place. The natives resemble those of Wateoo and the Society Isles.

MANGEL-WURZEL, or the root of scarcity, a root much celebrated as food for cattle. It is a species of beta. See **BETA**. It is a biennial plant; the root is large and fleshy, sometimes a foot in diameter. It rises above the ground several inches, and is thickest at the top, tapering gradually downward. The colors of the roots vary; being white, yellow, and red. It is good fodder for cows, and for rabbits; and produces great plenty of leaves, which are very palatable

and wholesome for cattle. It is chiefly cultivated in Germany, and France.

MANGER, *n. s.* Fr. *mangeoire*, *manger*; Lat. *mando*, to cut. The place or vessel in which animals are fed with corn.

Ye shall find the babe wrapped in swaddling clothes, lying in a manger. Luke ii. 12.

There lies the babe in the stable, crying in the manger, whom the angels came down from heaven to proclaim. Bp. Hall.

A churlish cur got into a manger, and there lay growling to keep the horses from their provender.

L'Estrange.

MANGER, in a ship of war, is a small apartment, extended athwart the lower deck immediately within the house-holes, and fenced on the after-part by a partition, which separates it from the other part of the deck behind it. This partition serves as a fence against the water, which occasionally gushes in at the house-holes, or falls from the wet cable whilst it is heaved in by the capstern. The water, thus prevented from running aft, is immediately returned into the sea by several small channels, called scuppers, cut through the ship's side within the manger. The manger is therefore particularly useful in giving a contrary direction to the water that enters at the house-holes, which would otherwise run aft in great streams upon the lower deck, and render it extremely wet and uncomfortable, particularly in tempestuous weather, to the men who mess and sleep in different parts of it.

MANGET (John James), an eminent physician, born in Geneva, in 1652. The elector of Brandenburg made him his first physician in 1699; in which post he continued till he died, at Geneva, in 1742. He wrote many works; the most known of which are, 1. A collection of several Pharmacopœias, in folio; 2. *Bibliotheca Pharmaceutico-Medica*; 3. *Bibliotheca Anatomica*; 4. *Bibliotheca Chénica*; 5. *Bibliotheca Chirurgica*; 6. A *Bibliotheca* of all the Authors who have written on Medicine, in 4 vols. folio. All these works are in Latin. Daniel le Clerc, the author of a History of Physic, assisted him in writing them.

MANGIFERA, the mango tree, in botany, a genus of the monogynia order, and the pentandria class of plants: cor. pentapetalous; the plum kidney-shaped. There is but one species, a native of many parts of the East Indies, whence it has been transplanted to Brasil and other warm parts of America. It grows to a large size; the wood is brittle; the bark rough when old; the leaves are seven or eight inches long, and more than two inches broad. The flowers are produced in loose panicles at the ends of the branches, and are succeeded by large oblong kidney-shaped plums. The fruit, when fully ripe, is greatly esteemed in the countries where it grows; but in Europe we have only the unripe fruit brought over in pickle. All attempts to propagate the plant have hitherto proved ineffectual; and Miller is of opinion that the stones will not vegetate unless they are planted soon after they are ripe. He thinks therefore that the young plants ought to be brought over in boxes of earth; after which they may be kept in the tan-bed of the stove.

MAN'GLE, *v. a. & n. s.* } *Swed. mangla,*
MAN'OLER, *n. s.* } *mangel; Teut. man-*
MAN'LING, *n. s.* } *gen, mangeln of*
 Goth, *manga*, to mutilate. *L. B. mangelone* was
 a powerful warlike machine, and hence probably
 applied to the heavy machine that presses linen.
 To cut in piece-meal; lacerate; tear; to press
 or smooth linen under a loaded machine.

Cassio, may you suspect
 Who they should be, that thus have *mangled* you?
Shakspeare.

Your dishonour
Mangles true judgment, and bereaves the state
 Of that integrity which should become it. *Id.*
 Thoughts, my tormenters, armed with deadly
 stings,
Mangle my apprehensive tenderest parts,
 Exasperate, exulcerate, and raise
 Dire inflammation, which no cooling herb,
 Or medicinal liquor can assuage.

Milton's Agonistes.
Mangle mischief. *Don Sebastian.*
 The triple porter of the Stygian seat,
 With lolling tongue, lay fawning at thy feet,
 And, seized with fear, forgot his *mangled* meat.
Dryden.

What could swords or poisons, racks or flame,
 But *mangle* and disjoint this brittle frame?
 More fatal Henry's words; they murder Emma's
 fame. *Prior.*

Since after thee may rise an impious line,
 Coarse *manglers* of the human face divine;
 Paint on, till fate dissolve thy mortal part,
 And live and die the monarch of thy art. *Tickel.*
 It is hard, that not one gentleman's daughter
 should read her own tongue; as any one may find
 who can hear them when they are disposed to *mangle*
 a play or a novel, where the least word out of the
 common road disconcerts them. *Swift.*

They have joined the most obdurate consonants
 without one intervening vowel, only to shorten a
 syllable; so that most of the books we see now-a-
 days, are full of those *manglings* and abbreviations.
Id.

Inextricable difficulties occur by *mangling* the
 sense, and curtailing authors. *Baker on Learning.*

MAN'GO, *n. s.* *Fr. mangosten.* A pickled
 fruit.

The fruit with the husk, when very young, makes
 a good preserve, and is used to pickle like *mangoes*.
Mortimer.

What lord of old would bid his cook prepare
Mangoes, portargo, champions, cavare? *King.*

MANHEIM, or **MANNHEIM**, the capital of the
 circle of the Neckar, in the grand duchy of Ba-
 den, is situated at the confluence of the Neckar
 and the Rhine: over the former is a bridge of
 boats, and a flying bridge over the Rhine. It is
 built with great regularity, in four parts; and has
 been called the finest town in Germany. Of an
 oval form, it was at one time surrounded with
 ramparts. These were levelled by the French
 in the end of the last century, and are now laid
 out in gardens. The palace of the grand duke
 occupies the bank of the Rhine, and is built of
 a red stone intermixed with a white, and is said
 on the whole to resemble in external appearance
 that of Hampton Court. In the bombardment
 of 1795 it was greatly injured; and has suffered
 by neglect since the court has been withdrawn
 to Munich; but it still contains a gallery of
 paintings, cabinets of antiquities and natural

history, and a library of 60,000 volumes. The
 observatory is a noble building, with a curious
 tower. The custom-house, surrounded with ca-
 lonades, under which are shops, is also a ver-
 superior building. Other public buildings are
 the secularised convents of the Augustines and
 Capuchins; the arsenal; theatre; merchant
 hall; the Lutheran, Calvinist, and Catholi-
 churches; the three hospitals; the workhouse
 and orphan house; and the Jesuits' church
 Here is also a gymnasium, with drawing and musi-
 schools; and a mercantile school; a society for
 the cultivation of German literature; an academy
 of painting and sculpture; and military and sur-
 gical academies. Mannheim has been though
 well situated for trade; but it has never flour-
 rished in this respect: when the court were here
 it was noted for its manufacture of gold tinsel
 and aromatic waters; the latter is still a consi-
 derable article of commerce. The chief manu-
 factures are linens, shawls, ribands, tobacco, and
 playing cards: there are also some large tanne-
 ries, and bleaching grounds. Population 18,000
 It is thirty-four miles north of Carlsruhe, and
 thirty-six south by west of Mentz. It was first
 chosen for the site of a town in 1606 by the
 reigning elector palatine, and colonised by emi-
 grants from the Netherlands. In the war termi-
 nated by the peace of Westphalia, in 1648,
 Mannheim underwent a siege, and fell into the
 vindictive hands of count Tilly. A succeeding
 elector palatine was induced, in 1719, to leave
 Heidelberg on account of religious disputes, and
 to make Mannheim his residence. The palace,
 still remaining, was now built, and the town for-
 tified according to the plan of Coehorn. The
 extinction of the palatine family, in 1777,
 caused the incorporation of their states with
 Bavaria and the removal of the court from
 this place to Munich. The provincial offices
 only remained: and the military operations in the
 war of the French revolution were still more in-
 jurious. In 1795 it was bombarded by the
 French, to whom it surrendered: it was after-
 wards besieged and taken by the Austrians. In
 1802 it was assigned to the grand duchy of Ba-
 den. Mannheim presents a very fine view from a
 distance.

MA'NIAC, *n. s. & adj.* } *Lat. maniacus; Gr*
MA'NI'ACAL, *adj.* } *μανια. Raging with*
 madness; mad to rage: a maniac is a furious
 madman.

And in his gere, for al the world he terd
 Nought only like the lover's maladie
 Of Eros, but rather ylike manie,
 Engendered of humours melancolike,
 Before his bed in his celle fantastike...

Chaucer. Cant. Tales.
 Epilepsies and maniacal lunacies usually conform
 to the age of the moon. *Crew's Osmologia.*

MANICHEI, **MANICHEANS**, or **MANICHEES**,
 a sect of ancient heretics, who asserted two prin-
 ciples; so called from their author Manes or
 Manicheus. See **MANES**. This heresy had its
 first rise about A. D. 277, and spread principally
 in Arabia, Egypt, and Africa. St. Epiphanius
 treats of it at great length. It was a motley
 mixture of the tenets of Christianity with the
 ancient philosophy of the Persians, in which

Manes had been instructed during his youth. He combined these two systems, and applied and accommodated to Jesus Christ the characters and actions which the Persians attributed to the god Mithras. He established two principles, a good and an evil one: the first a most pure and subtle matter, which he called light, did nothing but good; and the second a gross and corrupt substance, which he called darkness, nothing but evil. This philosophy is very ancient; and Plutarch treats of it at large in his *Isis and Osiris*. Our souls, according to Manes, were made by the good principle, and our bodies by the evil one; these two principles being, according to him, co-eternal and independent of each other. Each of these is subject to the dominion of a superintendent being, whose existence is from all eternity. The being who presides over the light is called God; he that rules the land of darkness bears the title of hyle or dæmon. The ruler of the light is supremely happy, and in consequence thereof benevolent and good: the prince of darkness is unhappy in himself, and desirous of rendering others partakers of his misery, and is evil and malignant. These two beings have produced an immense number of creatures, resembling themselves, and distributed them through their respective provinces. After a contest between the ruler of light and the prince of darkness, in which the latter was defeated, this prince of darkness produced the first parents of the human race. The beings engendered from this original stock consist of a body, formed out of the corrupt matter of the kingdom of darkness; and of two souls, one of which is sensitive and lustful, and owes its existence to the evil principle: the other rational and immortal, a particle of that divine light which had been carried away in the contest by the army of darkness, and immersed into the mass of malignant matter. * The earth was created by God out of this corrupt mass of matter, in order to be a dwelling for the human race, that their captive souls might by degrees be delivered from their corporeal prisons, and the celestial elements extended from the gross substance in which they were involved. With this view God produced two beings from his own substance, viz. Christ and the Holy Ghost: for the Manicheans held a consubstantial Trinity. Christ, or the glorious intelligence, called by the Persians Mithras, subsisting in and by himself, and residing in the sun, appeared in due time among the Jews, clothed with the shadowy form of a human body, to disengage the rational soul from the corrupt body, and to conquer the violence of malignant matter. The Jews, incited by the prince of darkness, put him to an ignominious death, which he suffered not in reality, but only in appearance, and according to the opinion of men. When the purposes of Christ were accomplished he returned to his throne in the sun, appointing apostles to propagate his religion, and leaving his followers the promise of the Paraclete or Comforter, who is the Persian Manes. Those souls who believe Jesus Christ to be the son of God renounce the worship of the god of the Jews, who is the prince of darkness, and obey the laws delivered by Christ, and are

by Manes the comforter, are gradually purified from the contagion of matter; and their purification being completed, after having passed through two states of trial, by water and fire, first in the moon and then in the sun, their bodies return to the original mass—for the Manicheans derided the resurrection of bodies—and their souls ascend to the regions of light. But the souls of those who have neglected the salutary work of purification pass after death into the bodies of other animals or natures, where they remain till they have accomplished their probation. Some, however, more perverse and obstinate, are assigned to a severer course of trial, being delivered over for a time to the power of malignant aerial spirits, who torment them in various ways. After this a fire shall break forth and consume the frame of the world; and the prince and powers of darkness shall return to their primitive seats of anguish and misery, in which they shall dwell for ever. These mansions shall be surrounded by an invincible guard, to prevent their ever renewing a war in the regions of light. Manes borrowed many of his tenets from the ancient Gnostics; on which account many authors consider the Manicheans as a branch of the Gnostics. In truth, the Manichean doctrine was a system of philosophy rather than of religion. They made use of amulets, in imitation of the Basilidians; and denied that Jesus Christ, who was only God, assumed a true human body, and maintained that it was only imaginary; and therefore denied his incarnation, death, &c. They pretended that the law of Moses did not come from God, or the good principle, but from the evil one; and that for this reason it was abrogated. The rest of their errors may be seen in St. Epiphanius and St. Augustin: the latter, having been of their sect, may be presumed to have been thoroughly acquainted with them. The rule of life and manners, which Manes prescribed to his followers, was most extravagantly rigorous and severe. He, however, divided his disciples into two classes; one of which comprehended the perfect Christians, under the name of the elect; and the other the imperfect and feeble, under the title of auditors or hearers. The elect were obliged to observe a rigorous and entire abstinence from flesh, eggs, milk, fish, wine, all intoxicating drink, wedlock, and all amorous gratifications; and to live in a state of the severest penury, nourishing their emaciated bodies with bread, herbs, pulse, and melons, and depriving themselves of all comforts. The auditors were allowed to possess houses, lands, and wealth, to feed on flesh, to enter into the bonds of conjugal tenderness; but this liberty was granted them with many limitations, and under the strictest conditions of moderation and temperance. The general assembly of the Manicheans was headed by a president, who represented Jesus Christ. There were joined to him twelve rulers or masters, who were designed to represent the twelve apostles, and these were followed by seventy-two bishops, the images of the seventy-two disciples of our Lord. These bishops had presbyters or deacons under them, and all the members of these religious orders were chosen out of the class of the elect.

Their worship was simple and plain; and consisted of prayers, reading the Scriptures, and hearing public discourses, at which both the auditors and elect were present. They observed baptism and the eucharist; and kept the Lord's day, observing it as a fast. They likewise kept Easter and Pentecost. Towards the fourth century the Manicheans concealed themselves under various names, which they successively adopted and changed in proportion as they were discovered by them. Thus they assumed the names of Encratites, Apotactics, Saccophori, Hydroparastates, Solitarii, and several others, under which they lay concealed for a certain time; but could not, however, long escape the vigilance of their enemies: About the close of the sixth century this sect gained very considerable influence, particularly among the Persians. Towards the middle of the twelfth century the sect of Manichees assumed a different aspect, one Constantine, an Armenian, taking upon him to suppress the reading of all other books besides the Evangelists and the Epistles of St. Paul, which he explained to contain a system of Manicheism. He entirely discarded all the writings of his predecessors; rejecting the chimeras of the Valentinians, and their thirty æons; the fable of Manes with regard to the origin of rain, and other dreams; but still retaining the impurities of Basilides. In this manner he reformed Manicheism, inasmuch that his followers rejected Addas and Terebinth, the contemporaries and disciples, as some say, and, according to others, the predecessors and masters of Manes; and even Manes himself, Constantine being now their great apostle; he was at last stoned by order of the emperor. This sect prevailed in Bosnia and the adjacent provinces about the close of the fifteenth century; propagated their doctrines with confidence, and held their religious assemblies with impunity.

MANICHORD, or MANICORDON, a musical instrument in form of a spinet; with forty-nine or fifty stops, and seventy strings; which, like those of the clavichord, are covered with little pieces of cloth to deaden as well as to soften their sound, whence it is also called the dumb spinet. The strings bear on five bridges.

MANIFEST, *adj. n. s. & v. a.* } Lat. *manifestus*. Clear; }
 MANIFESTATION, *n. s.* } plain; open; }
 MANIFESTABLE, *adj.* } detected; }
 MANIFESTLY, *adv.* } used by Dryden with *of*: }
 MANIFESTNESS, *n. s.* }
 MANIFESTO. }
 a declaration: to make clear, or plain; to expose; discover: manifestable is capable or easy of manifestation: manifesto, synonymous with manifest, *n. s.*

He that loveth me I will love him, and manifest myself to him. *John xiv. 21.*

That which may be known of God is manifest in them; for God hath shewed it unto them.

Rom. i. 19.

They all concur as principles, they all have their forcible operations therein, although not all in like apparent and manifest manner. *Hooker.*

Though there be a kind of natural right in the noble, wise, and virtuous, to govern them which are of servile disposition; nevertheless, for manifestation

of this their right, the assent of them who are to be governed seemeth necessary.

Thy life did manifest thou lov'dst me not;
 And thou wilt have me die assured of it.

Shakespeare.

We see manifestly that sounds are carried with wind.

Bacon.

The English did believe his name was therein abused; which he manifested to be true, by disavowing it openly afterwards.

Hayward.

He full

Resplendent all his father manifest
 Expressed.

Milton's Paradise Lost.

This is manifestible in long and thin plates of steel perforated in the middle, and equilibrated.

Browne.

As the nature of God is excellent, so likewise is it to know him in those glorious manifestations of himself in the works of creation and providence.

Tillotson.

I saw, I saw him manifest in view,
 His voice, his figure, and his gesture knew.

Dryden

Calisto there stood manifest of shame,
 And, turned a bear, the northern star became. *Id.*

You authentick witnesses I bring
 Of this my manifest: that never more
 This hand shall combat on the crooked shore.

Id.

It may be part of our employment, in eternity, to contemplate the works of God, and give him the glory of his wisdom manifested in the creation.

Ray on the Creation.

It was proposed to draw up a manifesto, setting forth the grounds and motives of our taking arms.

Addison.

The secret manner in which acts of mercy ought to be performed requires this public manifestation of them at the great day.

Atterbury.

He was pleased himself to assume, and manifest his will in our flesh, and so not only as God from heaven, but God visible on earth, to preach reformation among us.

Hammond.

Sects, in a state, seem to be tolerated because they are already spread, while they do not manifestly endanger the constitution.

Swift.

MAN'IFOLD, *adj.* } Of MANY (which see)
 MAN'IFOLDED, } and fold. Many in num-
 MAN'IFOLDLY, *adv.* } ber, or species; complicated.

They receive manifold more in this present time, and in the world to come life everlasting.

Luke xviii. 30.

They were manifoldly acknowledged the saviors of that country.

Sidney.

When his eyes did her behold.

Her heart did seem to melt in pleasures manifold.

Spenser.

Terror of the torments manifold,
 In which the damned souls he did behold. *Id.*

His puissant arms about his noble breast,
 And manifold shield, he bound about his wrist.

Frederic Queene.

If that the king

Have any way your good deserts forgot,
 Which he confesseth to be manifold,

He bids you name your griefs. *Shakespeare.*

If any man of quality will maintain, upon Edward earl of Gloster, that he is a manifold traitor, let him appear.

Id.

To represent to the life the manifold use of friendship, see how many things a man cannot do himself

Bacon's Essay.

They not obeying
 Incurred, what could they less? the penalty;
 And manifold in sin deserved to fall. *Milton.*
 My scope in this experiment is manifold. *Boyle.*

We are not got further than the borders of the mineral kingdom, so very ample is it, so various and manifold its productions. *Woodward.*

MANILIUS (Marcus), a Latin poet, whose poem lay buried in the German libraries, and was never heard of till Poggius, about 1580, published it from some old MSS. he found there. There is no account to be found of him but what can be drawn from his poem, which is called *Astronomicum*; and contains a system of the ancient astronomy and astrology, together with the philosophy of the Stoics. It consists of five books; but there was a sixth, which has not been recovered. The best editions of Manilius are, that of Joseph Scaliger in 1600; and that of Bentley, at London, in 1738.

MANILLA, the chief city of Lacon, one of the Philippines, and of the possessions of Spain in this part of the globe, is situated near the mouth of the river Passig, which issues from the lake of the bay, and which was formerly navigable for the largest ships to Manilla, but at present it is crossed by a sand-bank, with but fifteen feet at high water. The streets of Manilla are wide and straight: the basements of the houses only are of stone, on which is erected a superstructure of wood, put together like the frame of a ship, so as to cede to the shocks of earthquakes, which are almost continual here. The population is chiefly composed of Spanish Creoles, Chinese, and Malays, in the proportion of 1200 Spaniards and 35,000 Malays. The Chinese who newly arrive, and intend to remain, are obliged to get themselves baptised, when they are allowed to marry a Malay Christian woman, never bringing their women with them, and to carry on the professions of shopkeepers or mechanics, for they are prohibited from being proprietors or cultivators of land.

The fortifications of Manilla are irregular, having been built at different periods, without any original plan. The castle is separated from the town by a ditch, and is surrounded by a wall with outworks: the usual garrison is 400 to 500 regular troops, of whom one-third are seldom Europeans. The port of Cavita, two leagues from the town, is sheltered by a point of land on the south-west; and vessels when obliged to quit the road of Manilla, in the south-west monsoon, find perfect security moored close under the walls of Cavita, a town containing about 200 Spaniards and half-caste, and 1000 Chinese. It has two churches, and three immense convents of monks. The royal naval arsenal is situated on the point of the tongue of land that forms the port: it is strongly fortified and protected by the citadel of St. James.

The naval force stationed at Manilla during the late wars never exceeded four sail of the line, five frigates, and some small vessels, with a flotilla of thirty to sixty gun boats. The latter are intended to cruize against the pirates, but they seldom venture out of harbour, and the ships of war are badly equipped and not well manned. The exports from Manilla are cordage, resin,

pitch and tar, tobacco, cloths, rushes, rattans, indigo, rice, and cotton. The sugar-cane thrives well, but is little cultivated. Tobacco is manufactured into cigars, principally for the use of the ladies of the place. Cocoa too is much cultivated and consumed. To Bengal Manilla exports copper, indigo, and cochineal, with a large portion of treasure. In 1645 great part of this city was destroyed by an earthquake, and 3000 people perished. In 1762 it was taken by the English; when, to save it from destruction, it was agreed to pay £1,000,000 sterling for its ransom. Long 120° 54' E., lat. 14° 38' N.

MANILLE, in commerce, a large brass ring in the form of a bracelet, either plain or engraved, flat or round. The natives of the Gold Coast wear them as ornaments on the small of the leg, and on the thick part of the arm above the elbow. The chiefs wear manilles of gold and silver; which are made in the country by the natives.

MANIPULE, **MANIPULUS**, among the Romans, was a small body of infantry, which in the time of Romulus consisted of 100 men; and in the time of the consuls, and first Cæsars, of 200. The word properly signifies a handful; and, according to some, was first given to the handful of hay which they bore at the end of a pole, as an ensign, before the custom was introduced of bearing an eagle for their ensign; and hence also the phrase, 'a handful of men.' But Vegetius, Modestus, and Varro, gave other etymologies of the word: the last derives it from *manus*, a small body of men following the same standard. According to the former, this corps was called *manipulus*, because they fought hand in hand or all together. Each *manipule* had two *centurions* or captains, called *manipularii*, to command it; one whereof was lieutenant to the other. Each cohort was divided into three *manipules*, and each *manipule* into two centuries. Aulus Gellius quotes Cincius, an old author, who lived in the time of Hannibal (whose prisoner he was), and who, writing on the art of war, observes, that then each legion consisted of sixty centuries, of thirty *manipules*, and of ten cohorts. Varro and Vegetius mention it as the least division in the army, only consisting of the tenth part of a century; and Spartian adds, that it contained only ten men. This shows that it was not always the same.

MANIPULUS, in ecclesiastical affairs, an ornament worn by the priests, deacons, and sub-deacons in the Romish church. It consists of a little fillet in form of a stole, three or four inches broad, and made of the same stuff as the chasuble; representing a handkerchief, which the priests in the primitive church wore on the arm, to wipe off their tears for the sins of the people. There still remains a mark of this usage in a prayer rehearsed by those who wear it; *Mereor, Domine, portare manipulum fletus et doloris*. The Greeks and Maronites wear two *manipules*, one on each arm.

MANIPULUS, among physicians, is used to signify a handful of herbs or leaves, or so much as a man can grasp in his hand at once; and is often denoted by the abbreviation *M*, or *m*.

MANIS, the scaly lizard, in zoology, a genus

of quadrupeds belonging to the order of bruta, the characters of which are these: they have no fore teeth; the tongue is long and cylindrical; the snout is long and narrow; and the body is covered with hard scales. There are according to Dr. Gmelin two species.

1. *M. pentadactyla*, the five-toed or short-tailed manis, with five toes on each foot. The head is smaller than the neck; the eyes are very small; the length of the body, including the tail, is from six to eight feet. The whole body is covered with hard scales, excepting the under part of the head and neck, the breast, the belly, and the internal side of each leg. Betwixt the scales of this animal there are some hairs like the bristles of a hog, brownish at the points. The scales are of a reddish color, very hard, convex above, and concave below. All the parts which want scales are naked. The scales are unconnected; and the animal can raise or lower them at pleasure, like the quills of the porcupine. When irritated he erects his scales, and rolls himself up like a hedgehog. In this situation, neither the lion, tiger, nor any other animal, can hurt him. It is said to destroy the elephant by twisting itself round his trunk, and compressing that tender organ with its hard scales. It feeds on lizards and insects; turns up the ground with its nose; walks with its claws bent under its feet; grows very fat; and is esteemed delicate eating; and makes a noise like a kind of snorting. It is a mild inoffensive creature, is slow of motion, and has no other method of escaping the pursuit of man, but by concealing itself in crannies of rocks, and in holes which they dig in the ground, and where they bring forth their young. It is a native of the East Indies, and is very rare. It lives in woods and marshy places; feeds on ants, which it takes by laying its long tongue across their paths, which is covered with a viscid saliva, so that the insects which attempt to pass over it cannot extricate themselves.

2. *M. tetradactyla*, the four-toed or long-tailed manis, with four toes on each foot. This species is very similar to the former; only the tail is much longer in proportion; and such parts as want scales, instead of being naked, are covered with a soft hair. It inhabits Guinea, and is also found in the East Indies.

MANLEY (Mrs.), the celebrated author of the *Atalantis*, was the daughter of Sir Roger Manley, the reputed author of the first volume of the *Turkish Spy*, and born in Guernsey. She lost her parents very early; and having been deluded into a false marriage by her guardian, who was her cousin, and afterwards deserted her, she was patronised by the duchess of Cleveland (mistress of Charles II.). But the duchess, being a woman of a very fickle temper, grew tired of Mrs. Manley in six months; and discharged her upon a suspicion that she intrigued with her son. After this she wrote her first tragedy, called *Royal Mischief*, which was acted with great applause in 1696; and, her apartment being frequented by men of wit and gaiety, she soon engaged in various amours. She now became as licentious in her writings as in her morals; and a prosecution was commenced against her for her first mentioned work, but, those in power being ashamed

to bring her to trial, she was discharged; and, a total change of ministry ensuing, Mrs. Manley lived in high reputation and gaiety, amusing herself with the conversation of wits, and writing plays, poems, and letters. After this she wrote *Lucius king of Britain*, a tragedy; letters and other works. She died in 1724.

MANLIUS, CAPITOLINUS (Titus), a renowned Roman consul and general, who saved the capitol when it was attacked by the Gauls in the night; being alarmed by the cries of geese, which were ever after held sacred. But, being afterwards accused of aspiring at the sovereignty, he was thrown from the Tarpeian rock. See *ROME*.

MANLIUS TORQUATUS (Titus), a celebrated consul and Roman general, had great wit, but a difficulty in expressing himself, which induced Manlius Imperiosus, his father, to keep him almost by force in the country. Pompey, tribune of the people, enraged at this instance of severity, formed a design of accusing Manlius the father before the judges; but young Manlius, being informed of it, went to that tribune, and, with a poniard in his hand, made him swear that he would not proceed in that accusation against him to whom he owed his life. At length Manlius was made military tribune, and killed a soldier of the Gauls in single combat, from whose neck he took a gold chain, whence he was surnamed Torquatus. He was consul in the war against the Latins; when he ordered his own son to be beheaded, for fighting contrary to his orders, though he had gained the victory. He conquered the enemies of the republic, and was several times made consul; but at last refused the consulship, saying, 'That it was no more possible for him to bear with the vices of the people, than it was for the people to bear with his severity.'

MAN'NA, *n. s.* Arab. *mann*; Heb. מַּן; Gr. *μαύνα*, first used in the Septuagint. Josephus says, *Antiq. lib. iii.*, The Hebrews call this food manna (*μαύνα*), for the particle *man* in our language is the asking of a question, 'What is this?' An extraordinary kind of food with which the Israelites were supplied in the wilderness. See *Exod. xvi.* A gum. See below.

It would be well inquired, whether manna doth fall but upon certain herbs, or leaves only. *Bacon.*

The outward manna fell not at all on the Sabbath.

Bp. Hall.

The same hand that rained manna upon their tents, could have rained it into their mouths and laps. God loves we should take pains for our spiritual food. *Id.*

The manna in heaven will suit every man's palate.

Locke.

Manna is properly a gum, and is honey-like juice concreted into a solid form, seldom so dry but it adheres to the fingers: its colour is whitish, or brownish, and it has sweetness, and with it a sharpness that renders it agreeable; manna is the product of two different trees, both varieties of the ash: when the heats are free from rain, these trees exude a white juice. It is but lately that the world were convinced of the mistake of manna being an aerial produce, by covering a tree with sheets in the manna season, and the finding as much manna on it as on those which were open to the air. *Hill.*

MANNA, in sacred history, a miraculous kind of food which fell from heaven for the support of the Israelites in their passage through the wilderness, being in the form of coriander seeds, its color like that of bdellium, and its taste like honey. Asaph styles it the bread of heaven, and the food of angels, Psal. lxxviii. 25. The author of the Book of Wisdom says, xvi. 20, 21, that manna so accommodated itself to every one's taste, that every one found it pleasing to him; and that it included every thing that was agreeable to the palate and fit for good nourishment; which expressions some have taken in the literal sense, though others understand them figuratively. Critics are divided about the original of the word manna. Some think that man is put instead of the Hebrew word mah, which signifies, 'What is this?' and that the Hebrews, then first seeing that new food which God had sent them, cried to one another מן הוּא, man-hu, instead of mah-hu, What is this? Mr. Saumaise, Burckhardt, and others, maintain, that the Hebrews very well knew what manna was; and that, seeing it in great abundance about their camp, they said one to another, Man-hu, This is manna. They imagine that the manna which God sent the Israelites was nothing else but that fat and thick dew which still falls in Arabia, which presently condensed, and served for food to the people; that this is the same thing as the wild honey, mentioned Matth. iii. 4, wherewith John the Baptist was fed; and that the miracle did not consist in the production of any new substance, but in the exact and uniform manner in which the manna was dispensed for the maintenance of such a great multitude. But the Hebrews and Orientals believe, that the fall of the manna was wholly miraculous. The Arabians call it the sugar-plums of the Almighty; and the Jews pronounce a curse against all who deny the interposition of a miraculous power. Our translation, and some others, make a contradiction in relating this miracle, by rendering it thus: And when the children of Israel saw it, they said one to another, It is manna; for they wist not what it was: Exodus xvi. 15. Whereas the Septuagint, and several authors ancient and modern, have translated the text according to the original: 'The Israelites seeing this, said one to another, What is this? for they knew not what it was.' The word by which they asked, what is this? was in Hebrew man, which signifies likewise meat ready provided; and therefore it was always afterwards called man or manna. It was truly miraculous; because 1. It fell but six days in the week. 2. It fell in such a prodigious quantity, as sustained nearly 3,000,000 souls. 3. There fell a double quantity every Friday, to serve them the next day, being Sabbath. 4. What was gathered on the first five days, stunk and bred worms if kept above one day; but that which was gathered on Friday kept sweet for two days. And, lastly, It continued falling while the Israelites abode in the wilderness, but ceased as soon as they came out of it, and had corn to eat in the land of Canaan.

MANNA, in the materia medica, the juice of several different trees of the ash kind, either naturally concreted on the plants, or exsiccated

and purified by art. There are several sorts of manna in the shops. The larger pieces, called flake manna, are usually preferred; though the smaller grains are equally good, provided they are white, or of a pale yellow color; very light, of a sweet, not unpleasant taste, and free from any visible impurities. Some injudiciously prefer the fat honey-like manna, but this has either been exposed to a moist air, or damaged by water. This kind of manna is said to be sometimes counterfeited by a composition of sugar and honey mixed with a little scammony; there is also a factitious manna, which is white and dry, said to be composed of sugar, manna, and some purgative ingredient, boiled to a proper consistence. This may be distinguished by its weight, solidity, untransparent whiteness, and by its taste, which is different from that of manna. Manna is a mild agreeable laxative; and may be given with safety to children and pregnant women: though, in some constitutions, it produces flatulencies and distensions of the viscera; but these inconveniences may be prevented by the addition of any warm aromatic. It operates so weakly, that it does not produce the full effect of a cathartic, unless taken in large doses; and hence it is rarely given by itself. It may be commodiously dissolved in the purging mineral waters, or joined to the cathartic salts, senna, rhubarb, or the like. Geoffroy recommends acuating it with a few grains of emetic tartar; by this management, he says, bilious serum will be plentifully evacuated, without any nausea, gripes, or other inconvenience. Vallisnieri says, that the efficacy of this drug is greatly promoted by cassia. See CASSIA.

MANNA TREE, a species of the ash, and a native of Calabria. See FRAXINUS. The shoots of this tree are much shorter, and the joints closer together, than those of the common ash; the small leaves are shorter, deeper sawed on their edges, and of a lighter green. The flowers come out from the side of the branches, which are of a purple color, and appear in the spring before the leaves come out. The tree is of humble growth, seldom rising more than fifteen or sixteen feet high in this country. A great quantity of fine manna is gathered at Carini in Sicily, oozing from a kind of ash tree with a bark similar to that of the ebony, and a leaf somewhat like the acacia. M. Denon says, it is produced from young trees about seven or eight years old, when only about eight feet high. Incisions are then made horizontally in the bark, and from these the manna flows. These are made from the earth to the top of the tree, and are repeated every two days from the end of July till the circulation is stopped in the course of the year, or till the manna becomes worse in quality. It exudes first as a white frothy liquor extremely light, pleasant to the taste, and of an agreeable flavor, which is coagulated by the heat of the sun, and assumes an appearance somewhat resembling stalactites. This is the best kind, and by the people of that country is called lachrymatory or cane manna. The inferior kind appears first in the form of a glutinous and higher colored liquor, which is received on the leaves of the Indian fig, placed for that purpose at the foot of

the tree. This also congeals by the heat of the sun; though it is more heavy, purgative, and of much less value than the former. It is called fat manna: in this part only resides the faint and disagreeable flavor observable in manna; for the cane manna is of an agreeable flavor, and is an excellent stomachic. It is got off from the bark of the tree by bending and shaking it. In rainy seasons it must be gathered every day, which both lessens the quantity and renders it of inferior quality. When the stem of the tree is entirely covered with incisions, they cut it down close to the ground; after which it pushes out new tufts, one or two stems of which are preserved, and at a proper age produce manna as before. This tree is propagated by seed, and afterwards transplanting it. The wood is hard and heavy, of a bitter taste, and recommended in the dropsy. It thrives only in hot climates, and requires to be exposed to the north winds to make it productive; but M. Denon is of opinion that it might be propagated, and would produce manna, in Provence in France. The Sicilian manna is dearer and more esteemed than that of Calabria, though the latter is more generally known and cultivated. The tree does not grow in any other part of the island excepting about Carini, where it is a native.

MAN'NER, *n. s.* } Fr. *manière*; Ital. *maniera*; Span. *manera*.
 MAN'NERLY, *adj.* }
 MAN'NERLINESS, *n. s.* } *neire, manera*. Mode;
 MAN'NERS, *plu.* } method; habit; custom; peculiarity of any kind; hence sort; kind; character of the mind, or behaviour; proper behaviour. 'Taken in the manner' seems written for taken in the mainour. See MAINOUR.

And thei clipiden hem and denounciden to hem, that on no *maner* thei schulden speke, neither teche in the name of ihesus. *Wielif. Deds. iv.*

What *manner* of men were they whom ye slew! *Judges.*

The bread is in a *manner* common. *1 Sam. xxi. 5.*

It is in a *manner* done already;
 For many carriages he hath dispatched
 To the sea-side. *Shakspeare. King John.*

All *manner* of men assembled here in arms against God's peace and the king's: we charge you to repair to your dwelling-places. *Id. Henry VI.*

Our griefs and not our *manners* reason now. *Id.*
 Ungracious wretch,

Fit for the mountains and the barbarous caves,
 Where *manners* ne'er were preached. *Id.*

Dear Kate, you and I cannot be confined within the weak list of a country's fashion: we are the makers of *manners*, Kate. *Id.*

Tut; tut; here's a *mannerly* forbearance. *Id.*

If the envy be general in a *manner* upon all the ministers of an estate, it is truly upon the state itself. *Bacon's Essays.*

The kinds of musick have most operation upon *manners*: as, to make them warlike; to make them soft and effeminate. *Bacon.*

If I melt into melancholy while I write, I shall be taken in the *manner*; and I sit by one too tender to these impressions. *Donne.*

The same act varies in the *manner* of doing, and in the intention of the doer. *Bp. Hall.*

What must our complete traveller stake down for this goodly furniture of his gentry? If not loss, danger; danger of the best part, if not all: a dou-

ble danger; of corruption of religion, and depravation of *manners*, both capital. *Id.*

It can hardly be imagined how great a difference was in the humour, disposition, and *manner*, of the army under Essex, and the other under Waller. *Clarendon.*

This universe we have possess'd, and ruled,
 In a *manner* at our will, the affairs of earth. *Milton.*

Others out of *mannerliness* and respect to God though they deny this universal soul of the universe yet have devised several systems of the universe. *Hale's Origin of Mankind.*

In my divine Emilia make me blest.
 Find thou the *manner*, and the means prepare;
 Possession, more than conquest, is my care. *Dryden.*

Good *manners* bound her to invite
 The stranger dame to be her guest that night. *Id.*

Every fool carries more or less in his face the signature of his *manners*, more legible in some than others. *L'Estrange.*

The real honest man, however plain or simple he appears, has that highest species, honesty itself, in view; and, instead of outward forms or symmetries is struck with that of inward character, the harmony and numbers of the heart, and beauty of the affections, which form the *manners* and conduct of a true social life. *Shaftesbury.*

None but the careless and the confident would rush rudely into the presence of a great man: and shall we, in our applications to the great God, take that to be religion, which the common reason and mankind will not allow to be *manners*? *South.*

His princes are as much distinguished by their *manners* as by their dominions; and even those among them, whose characters seem wholly made up of courage, differ from one another as to the particular kinds. *Addison.*

Fools make a mock at sin, affront the God whom we serve, and vilify religion; not to oppose them by whatever *mannerly* names we may palliate the offence, is not modesty but cowardice, and a traitorous desertion of our allegiance to Christ. *Rogers.*

The temptations of prosperity insinuate themselves after a gentle, but very powerful, *manner*. *Atterbury.*

As a man is known by his company, so a man's company may be known by his *manner* of expressing himself. *Swift.*

Your passion bends

Its forces against your nearest friends;
 Which *manners*, decency, and pride,
 Have taught you from the world to hide. *Id.*

Some men have a native dignity in their *manners* which will procure them more regard by a look, than others can obtain by the most imperious commands. *Clarissa.*

Augustinus does in a *manner* confess the charge. *Baker.*

It is with books as with women, where a certain plainness of *manner* and of dress is more engaging than that glare of paint, and airs, and apparel which may dazzle the eye, but reaches not the affections. *Hume.*

The force of his comick scenes has suffered little diminution from the changes made by a century and a half in *manners* or in words. *Johnson. Preface to Shakspeare.*

Fear, being an apprehension of pain or death, operates in a *manner* that resembles actual pain. *Burke.*

When Cromwell fought for power, and while he reigned

The proud protector of the power he gained,
Religion harsh, intolerant, austere,
Parent of manners like herself severe,
Drew a rough copy of the Christian face,
Without the smile, the sweetness, or the grace.

Cowper.

MANNER, in painting, a habitude that a man acquires in the three principal parts of painting, the management of colors, lights, and shadows; which is either good or bad according as the painter has practised more or less after the truth, with judgment and study. But the best painter is he who has no manner at all. The good or bad choice he makes is called *gout*.

MANNHARTSBERG, a mountain chain in Austria, extending from north to south, beginning at the frontier of Moravia, and terminating at the Danube. It divides the part of Lower Austria lying to the north of the Danube, into the quarter above and the quarter under the Mannhartsberg; the former comprehending the tract extending from the above mountain on the east, to the frontier of Upper Austria west, and having an area of 1850 square miles. It is well cultivated and populous; the chief products being corn, saffron, and an inferior wine. The Danube forms its southern boundary, and the principal town is *Crems*.

The quarter under the Mannhartsberg extends between the above mountain on the west, and the Hungarian frontier. Its form is square; its area about 1900 square miles, and its productions similar to those of the above quarter: but in the south-east district an immense quantity of poultry is bred for Vienna. It is watered north by the *Theya*, south by the Danube, and east by the *March*. The chief town is *Kloster-Neuburg*.

MANNING (*Owen*), a celebrated antiquarian writer, was born at Orlingbury in Northamptonshire in 1727. He received his education at Queen's College, Cambridge, of which society he became fellow, and took the degree of B. D. in 1753. In 1760 he obtained a prebend in the cathedral of Lincoln. In 1763 he was presented to the living of Godalming, and in 1769 to that of Pepperharrow in Surrey. He died in 1801. Mr. Manning published the *Saxon Dictionary*, begun by Mr. Lye; *Illustrations of the Will of Alfred*; and two sermons. After his death his *History and Antiquities of the County of Surrey* was completed by Mr. Bray, in 3 vols. folio.

MANNING THE YARDS (*Fr. ranger du monde sur les vergues*), the act of ranging the people on the yards, rigging, &c., either in honor of some illustrious visitor, upon hoisting the flag of some favorite admiral, or in commemoration of some splendid victory. This exhibition has often proved fatal to some of our brave seamen, and therefore ought to be dispensed with, unless upon very particular occasions, as from its very nature it must always be attended with considerable danger; and it is well known that many of our admirals are too firmly convinced of the attachment of their tars to require such a testimony of their zeal or affection; and, much to their credit, have forbidden such a compliment to be paid them.

MANOMETER, or **MANOSCOPE**, from *μανος*, rare or thin, and *μετρεω*, to measure; an instrument to show or measure the alterations in the rarity or density of the air. The manometer differs from the barometer in this, that the latter only serves to measure the weight of the atmosphere, or of the column of air over it; but the former, the density of the air in which it is found; which density depends not only on the weight of the atmosphere, but also on the action of heat and cold, &c. Authors, however, generally confound the two together; and Boyle himself gives a very good manometer, under the name of a statical barometer. Manometers of a different kind were made use of by colonel Roy, in his attempts to correct the errors of the barometer. 'They were,' says he, 'of various lengths, from four to upwards of eight feet: they consisted of straight tubes, whose bores were commonly from one-fifteenth to one-twenty-fifth of an inch diameter. The capacity of the tube was carefully measured, by making a column of quicksilver, about three or four inches long, move along it from one end to the other. These spaces were severally marked with a fine-edged file on the tubes; and transferred from them to long slips of pasteboard, for the subsequent construction of the scales respectively belonging to each. The bulb, attached to one end of the manometer at the glass-house, was of the form of a pear, whose point being occasionally opened, dry or moist air could be readily admitted, and the bulb sealed again, without any sensible alteration in its capacity. The air was confined by a column of quicksilver, long or short, and with the bulb downwards or upwards, according to the nature of the proposed experiment. Here it must be observed that, from the adhesion of the quicksilver to the tube, the instrument will not act truly, except it be in a vertical position; and even then it is necessary to give it a small degree of motion, to bring the quicksilver into its true place; where it will remain in equilibrio between the exterior pressure of the atmosphere on one side, and the interior elastic force of the confined air on the other. Pounded ice and water were used to fix a freezing point on the tube; and, by means of salt and ice, the air was farther condensed, generally 4°, and sometimes 5° or 6° below zero. The thermometer and manometer were then placed in a tin vessel among water, which was brought into violent ebullition; where having remained a sufficient time, and motion being given to the manometer, a boiling point was marked thereon. After this the fire was removed, and the gradual descents of the piece of quicksilver, corresponding to every 20° of temperature in the thermometer, were successively marked on a deal rod applied to the manometer. It is to be observed, that both instruments, while in the water, were in circumstances perfectly similar; that is, the ball and bulb were at the bottom of the vessel. In order to be certain that no air had escaped by the side of the quicksilver, during the operation, the manometer was frequently placed a second time in melting ice. If the barometer had not altered between the beginning and end of the experiment, the quicksilver always became

stationary at or near the first mark. If any sudden change had taken place in the weight of the atmosphere, during that interval, the same was noted, and allowance made for it in afterwards proportioning the spaces. Long tubes, with bores truly cylindrical, or of any uniform figure, are scarcely ever met with. Such, however, as were used in these experiments generally tapered in a pretty regular manner from one end to the other. The observed and equated manometrical spaces being laid down on the pasteboard containing the measures of the tube, the 212° of the thermometer, in exact proportion to the sections of the bore, were constructed alongside of them; hence the coincidences with each other were easily seen, and the number of thermometrical degrees answering to each manometrical space readily transferred into a table prepared for the purpose.' See PNEUMATICS.

MAN'OR, *n. s.* Old Fr. *manoir*; barbarous Lat. *manerium*. A legal rule or government. See below.

Trouthe him selfe over al and al
Had chose his *manor* principal
In her, that was his resting place.

Chaucer's Drewe.

My parks, my walks, my *manors* that I had,
Ev'n now forsake me; and of all my lands

Is nothing left me. *Shakspeare. Henry VI.*

In these days, a *manor* rather signifies the jurisdiction and royalty incorporeal, than the land or site: for a man may have a *manor* in gross, as the law terms it, that is, the right and interest of a court-baron, with the perquisites thereto belonging.

Cowell.

If parliament were to consider the sporting with reputation of as much importance as sporting on *manors*, and pass an act for the preservation of fame, there are many would thank them for the bill

Sheridan.

MANOR, from *maneo*, to stay, as being the usual residence of the owner, seems to have been a district of ground held by lords or great personages; who kept in their own hands so much land as was necessary for the use of their families. These lands were called *terre dominicales*, or *demesne lands*; being occupied by the lord, or *dominus manerii*, and his servants. The other, or *tenemental lands*, they distributed among their tenants; which, from the different modes of tenure, were called and distinguished by two different names. 1st. *book land*, or *charter land*, which was held by a deed under certain rents and free services, and in effect differed nothing from *free socage lands*; and hence have arisen most of the freehold tenants who hold of particular manors, and owe suit and service to the same. The other species was called *folk land*, which was held by no assurance in writing, but distributed among the common folk at the pleasure of the lord, and resumed at his discretion; being indeed land held in *villennage*. See *VILLENAGE*. The residue of the manor, being uncultivated, was termed the lord's waste, and served for public roads, and for common of pasture to the lord and his tenants. Manors were formerly called *baronies*, as they still are lordships; and each lord or baron was empowered to hold a domestic court, called the court-baron for redressing misdemeanors and nui-

sances within the manor, and for settling disputes of property among the tenants. This court is an inseparable ingredient of every manor; and if the number of suitors should so fail as not to leave sufficient to make a jury or homage, that is, two tenants at the least, the manor itself is lost. See *COURT*. In early times the king's greater barons, who had a large extent of territory held under the crown, granted out frequently smaller manors to inferior persons to be held of themselves; which therefore now continue to be held under a superior lord, who is called in such cases the lord paramount over all these manors; and his seignory is frequently termed an honor, not a manor; especially if it has belonged to an ancient feudal baron, or has been at any time in the hands of the crown. In imitation whereof these inferior lords began to carve out and grant to others still more minute estates, to be held as of themselves, and were so proceeding downwards in infinitum, till the superior lords observed that, by this method of subinfeudation, they lost all their feudal profits of wardships, marriages, and escheats, which fell into the hands of these mesne or middle lords, who were the immediate superiors of the terre tenant, or him who occupied the land; and also that the mesne lords themselves were so impoverished thereby, that they were disabled from performing their services to their own superiors. This occasioned, first, that provision in the thirty-second chapter of *Magna Charta*, 9 Hen. III., that no man should either give or sell his land, without reserving sufficient to answer the demands of his lord; and, afterwards, the statute of Westminster 3, or *quia emptores*, 18 Edw. I. c. 1, which directs that, upon all sales, or feoffments of land, the feoffee should hold the same, not of his immediate feoffer, but of the chief lord of the fee, of whom such feoffer himself held it. But, these provisions not extending to the king's own tenants in capite, the like law concerning them is declared by the statutes of *prærogativa regis*, 17 Edw. II. c. 6, and of 34 Edw. III. c. 15, by which last all subinfeudations, previous to the reign of Edward I., were confirmed; but all subsequent to that period were left open to the king's prerogative. Hence it is clear, that all manors existing at this day must have existed as early as Edward I., for it is essential to a manor that there be tenants who hold of the lord; and, by the operation of these statutes, no tenant in capite since the accession of that prince, and no tenant of a common lord since the statute of *quia emptores*, could create any new tenants to hold of himself. See *VILLENAGE*.

MANRESA, MINOROSA, or MANXES, a large town of Spain, in Catalonia, on the river Cardener, which a little below this place falls into the Llobregat. It has a castle, six convents, and a church, together with various manufactures of silk (on an extensive scale), hats, gunpowder, sugar of lead, and hair-cloth. Population 9000. Twenty-nine miles N. N. W. of Barcelona.

MANS, *L. s.*, a considerable town of France, the capital of the department of the Sarthe, stands on an eminence by the side of that river. The streets, though narrow, are airy and clean; the market-place is spacious; and there are several

agreeable promenades. The public buildings and institutions worth notice are the cathedral, and other churches, a public library, and museum, and the hospitals. Here are considerable manufactures of linen, sail-cloth, serge, flannel, druggets, and wax candles; and smaller manufactures of leather, gloves, paper, and soap. This town was a place of consequence in the reign of Charlemagne, and has suffered severely from fires, and the civil wars of the thirteenth and sixteenth centuries. Population 18,500. Twenty miles south of Alençon, and seventy-five west by north of Orleans.

MANSAROWAT, **MANAS-SAROWAR**, or, as it is called by the Tartars, **Mapang**, the lake of **Brahma**, is situated on the northern side of the **Himalaya Mountains**, and is considered by the **Hindoos** one of the most sacred of their various places of pilgrimage. In the mythological poems mention is frequently made of two lakes, situated among the **Himalaya Mountains**, named the **Mana Sarovara** and the **Vindu Sarovara**, from which issue several of their sacred rivers. According to **Prawn Poory**, a travelling devotee, the **Mansarowar Lake** is situated on an elevated plain, covered with long grass, to the north of which is a conical hill, dedicated to **Mahadeva**. The **Tartars** are said to carry a portion of the ashes of their friends from a very great distance, to be thrown into the **Mapang**. For a long period it was supposed that this lake was the source of the **Ganges**; but it has been well ascertained that that river rises from under a bed of snow on the south side of the **Himalaya chain**. See **GANGES**.

Mr. Moorcroft visited this lake in 1812, and is of opinion that it has no considerable outlet. His stay was, however, too short to allow of his making the complete circuit of it; and it has been conjectured, that although no river runs from it, it may nevertheless have some drains which carry off its superfluous waters into the **Rawan Lake**, situated some miles to the west, and from which the river **Suttelege**, or **Sutlege**, has its rise. **Mansarowar**, or **Mapang**, is supposed to be situated about 21° of N. lat., and 81° of E. long. It is of an oval form; being about fifteen miles in length from east to west, and eleven broad from north to south. The water is very clear and wholesome.

MANSE, *n. s.* } *Lat. mansio*. A residence;
MAN'SION. } a farm and farm-house; parsonage-house: the lord's house in a manor; any important house or abode.

All these are but ornaments of that divine spark within you, which, being descended from heaven, could not elsewhere pick out so sweet a *mansion*.
Sutley.

A fault no less grievous, if so be it were true, than if some king should build his *mansion*-house by the model of **Solomon's palace**.
Hooker.

To leave his wife, to leave his babes,
His *mansion*, and his titles in a place
From whence himself does fly! he loves us not.
Shakspeare.

These poets near our princes sleep,
And in one grave their *mansions* keep. *Denham.*
Thy *mansion* wants thee, **Adam**; rise,
First man, of men innumerable ordained;

First father! called by thee, I come thy guide
To the garden of bliss, thy seat prepared. *Milton.*

A *mansion* is provided for thee; more fair
Than this, and worthy Heaven's peculiar care,
Not framed of common earth. *Dryden.*

Nor fears to crave
Death, instant death, impatient for the grave,
That seat of peace, that *mansion* of repose,
Where rest and mortals are no longer foes.
Young.

And such in ancient halls and *mansions* drear
May still be seen; but perforated sore,
And drilled in holes, the solid oak is found,
By worms voracious eaten through and through.
Couper.

MANSFELD (**Peter Ernest**), count of, was descended from one of the most illustrious families in Germany. In 1552 he was taken prisoner at **Ivoy**, where he commanded. He was afterwards of great service to the Catholics at the battle of **Montcontour**. Being made governor of **Luxemburg**, he maintained tranquillity in that province, while the rest of the Netherlands was a prey to civil war. He was afterwards appointed to the command of the Netherlands, and made a prince of the empire. He died at **Luxemburg** March 21st, 1604, aged eighty-seven. His mausoleum in bronze, in the chapel bearing his name, at **Luxemburg**, is an admirable work. **Abbé Schannat** wrote his life in Latin, **Luxemburg**, 1707.

MANSFELD (**Ernest de**), the illegitimate son of the count, by a lady of **Malines**, was educated at **Brussels** in the Roman Catholic religion. He was employed in the service of the king of Spain in the Netherlands, and in that of the emperor in Hungary, together with his brother **Charles**, count of **Mansfeld**. He was legitimated on account of his bravery by **Rodolphus II.**; but his father's posts and possessions in the Spanish Netherlands having been refused him, contrary to promise, he, in 1610, joined the Protestant princes. Being now become a most dangerous enemy of the house of Austria, who called him the **Attila** of Christianity, he placed himself in 1618 at the head of the insurgents in **Bohemia**, and obtained possession of **Pilsen** in 1612. Though his troops were defeated in several battles, he penetrated into the palatinate, took several towns, ravaged **Alsace**, made himself master of **Hagenau**, and defeated the **Bavarians**. At length he was totally defeated by **Walstein** at **Dassau**, in April, 1626. He gave up the command of his remaining troops to the duke of **Weimar**, intending to pass into the Venetian states, but died in a village between **Zara** and **Spalatro**, A. D. 1626, aged forty-six. He was bold, intrepid in danger, and the most skilful negotiator of his age. He possessed a natural eloquence, and knew how to insinuate himself into the hearts of those whom he wished to gain. He was greedy of others' wealth, and prodigal of his own. Not wishing to die in his bed, he dressed himself in his finest robes, put on his sword, sat up, leaning upon two domestics, and in this position breathed his last. Having received information that **Cazel**, in whom he placed the greatest confidence, had communicated his plans to the Austrian chief, he gave him 300 rix-dollars, and sent him to count **Buquoy**, with a

letter in these words, 'Cazel being attached to you and not to me, I send him to you, that you may have the benefit of his services.'

MANSFELD, a district of Saxony, to the west of Leipsic, formerly a county of the German empire, and dependent, as a fief, on Magdeburg and Saxony. The area is 420 square miles, and population 60,000.

MANSFELD, or **THAL MANSFELD**, a town of Prussian Saxony, on the Thalbach, in the government of Merseburg. Population 1300. Forty-two miles W. N. W. of Leipsic.

MANSFIELD, a market town of Nottinghamshire, in the forest of Sherwood, 139 miles from London. It was anciently a royal demesne. It has a market on Thursday, and two fairs. By an ancient custom of this manor, the heirs were declared of age as soon as born. It is a well-built town, and carries on a good trade in malt. Its market is well stocked with corn, cattle, &c. It has a charity-school for thirty-six boys. It has a small manufactory of stockings, and was formerly noted for its soap.

MANSIO, a term often mentioned in itineraries, denoting inns on the public roads to lodge in, at the distance of eighteen miles from each other. (Lactantius.) In the lower ages it came to denote an encampment for one night. (Lampridius.)

MANSIO, or **MANSUS**, was sometimes also used in the same sense with *hide*; that is, for as much land as one plough could till in a year.

MANSIR, a beautiful town of Hindostan, in the province of Lahore, belonging to the Seiks. It is situated on the side of a large sheet of water, containing a variety of fishes, which are held sacred, and live unmolested by the natives. Long. 74° 20' E., lat. 32° 50' N.

MANSLAUGHTER may be either voluntary, upon a sudden heat; or involuntary, but in the commission of some unlawful act. These were called, in the Gothic constitutions, *homicidia* vulgaria; *quæ aut casu, aut etiam sponte committuntur, sed in subitaneo quodam iracundiæ calore et impetu*. Hence, in manslaughter, there can be no accessories before the fact; because it must be done without premeditation.

MANSLAUGHTER, INVOLUNTARY, differs from homicide excusable by misadventure, in this: that misadventure always happens in consequence of a lawful act, but this species of manslaughter in consequence of an unlawful one. As if two persons play at sword and buckler, unless by the king's command, and one of them kills the other: this is manslaughter, because the original act was unlawful; but it is not murder, for the one had no intent to do the other any personal mischief. So where a person does an act, lawful in itself, but in an unlawful manner, and without due caution and circumspection; as when a workman flings down a stone or piece of timber into the street, and kills a man; this may be either misadventure, manslaughter, or murder, according to the circumstances under which the original act was done. If it were in a country village, where few passengers are, and he calls out to all people to have a care, it is a misadventure only: but if it were in London, or other populous towns, where people are continually passing, it

is manslaughter, though he gives loud warning; and murder, if he knows of their passing and gives no warning at all, for then it is malice against all mankind. In general, when an involuntary killing happens in consequence of an unlawful act, it will be either murder or manslaughter, according to the nature of the act which occasioned it. If it be in prosecution of a felonious intent, or in its consequences naturally tending to blood-shed, it will be murder; but, if no more was intended than a merely civil trespass, it will only amount to manslaughter.

MANSLAUGHTER, VOLUNTARY. If, upon a sudden quarrel, two persons fight, and one of them kills the other, this is manslaughter: and so it is if they, upon such an occasion, go out and fight in a field; for this is one continued act of passion: and the law pays that regard to human frailty, as not to put a hasty and deliberate act upon the same footing with regard to guilt. So also if a man be greatly provoked, as by pulling his nose, or other great indignity, and immediately kills the aggressor; though this is not excusable *se defendendo*, since there is no absolute necessity for doing it to preserve himself; yet neither is it murder, for there is no previous malice; but it is manslaughter. But in this, and in every other case of homicide upon provocation, if there be a sufficient cooling-time for passion to subside and reason to interpose, and the person so provoked afterwards kills the other, this is deliberate revenge, and not heat of blood, and accordingly amounts to murder. So, if a man takes another in the act of adultery with his wife, and kills him directly upon the spot; though this was allowed by the law of Solon, as likewise by the Roman civil law (if the adulterer was found in the husband's own house), and also among the ancient Goths; yet in England it is not absolutely ranked in the class of justifiable homicide, as in case of a forcible rape, but it is manslaughter. It is, however, the lowest degree of it; and therefore in such a case the court directed the burning in the hand to be gently inflicted, because there could not be a greater provocation. Manslaughter, therefore, on a sudden provocation, differs from excusable homicide *se defendendo* in this: that in one case there is apparent necessity, for self-preservation, to kill the aggressor; in the other no necessity at all, being only a sudden act of revenge.

MANSLAUGHTER, PUNISHMENT OF. As to the punishment of this degree of homicide: the crime of manslaughter amounts to felony, but within the benefit of clergy; and the offender shall be burnt in the hand, and forfeit all his goods and chattels. But there is one species of manslaughter, which is punished as murder, the benefit of clergy being taken away from it by statute; namely, the offence of mortally stabbing another, though done upon sudden provocation. 'See **STABBING** and **MURDER**.

MANSOURA, a considerable town of Lower Egypt, built by the Saracens in the time of the crusades. It was the scene of several actions sustained by the French and English; and is supposed by Dr. Pocock to be the Zoan or Tanis of more ancient times. Lord Valentia speaks of it as beautifully situated on a high bank of the Nile, and adorned with numerous mosques. The

streets narrow, and the houses built of brick; but a fourth part of it is in ruins. The trade is carried on by Syrian Christians, who export fine rice from the lake Menzaleh, and sal ammoniac. Hatching chickens, by means of ovens, is carried on here to a great extent. Twenty-four miles S. S. W. of Damietta.

MANSOURAH, a river of Algiers, anciently the Sisaris, which falls into the sea, about eighteen miles to the east of Boujeiah. There was formerly a town of the same name at its mouth.

MANSTEIN (Christopher Herman de), was born at Petersburg, September 1st, 1711, and served long with great distinction as a colonel in the Russian armies. In 1745 he entered into the service of the king of Prussia; was appointed major-general of infantry in 1754; and distinguished himself on all occasions by his bravery and military knowledge. He was wounded at the battle of Kolin, and soon after killed near Leutmeritz, in 1758. He devoted his leisure moments to study, and was acquainted with almost all the languages of Europe. He wrote Historical, Political, and Military Memoirs of Russia, in French; published at Lyons, 1772, in 2 vols. 8vo., with plans and charts. These memoirs commence with the death of Catherine I. 1727, and end in 1744. A supplement is added, which goes back to the times of the ancient Czar. Mr. Hume caused these memoirs to be translated into English, and published at London; and soon after a German translation was published at Hamburgh; a French edition was published by M. Huber at Leipsic, in 1771; and a new and enlarged edition in 1782.

MANSUETE, *adj.* } Lat. *mansuetus*. Tame;

MAN'SUETUDE, *n. s.* } gentle; not ferocious or wild: tameness; gentleness.

The angry lion did present his paw,
Which by consent was given to *mansuetude*;

The fearful hare her ears, which by their law
Humility did reach to fortitude. *Herbert.*

This holds not only in domestic and *mansuete* birds, for then it might be thought the effect of circumscription or institution, but also in the wild.

Ray on the Creation.

MANSUS. See **MANSE.**

MANSUS PRESBYTERI is a parsonage or vicarage house for the incumbent to reside in. This was originally, and still remains, an essential part of the endowment of a parish church in Scotland, together with the glebe and tythes. It is sometimes called *Presbyterium*.

MANTA, in ichthyology, a flat fish mentioned by Ulloa, and others, as exceedingly hurtful to the pearl-fishers, and which seems to be the same with that which Pliny has described under the name of *nubes* or *nebula*: *ipsi ferunt (Urinatores) et nubem quandam crassescere super capita, planorum piscium similem, prementem eos, arcucentemque a reciprocando et ob stilos preacutos ita annexos habere sese; quia nisi perfossæ lina, non recedant caliginis et pavoris, ut arbitror, opere. Nubem enim sive nebulam (cujus nomine id malum appellant) inter animalia haud ullam reperit quisquam.* (Hist. Nat. lib. ix. cap. 46). This account is much the same with that which the divers in the American seas give of the manta, and the name of *nubes*, or the cloud, is perfectly applicable to it, as it really

seems to be a cloud to those who are in the water below it: the swimmers likewise carry long knives, or sharp sticks, to defend themselves against these fish.

MANTA, BAY OF, on the west coast of South America, in the province of Guayaquil, and kingdom of Quito. It is twenty miles south of the equator, and had formerly pearl fisheries of considerable extent and success. The fish called manta abounds here, and is said to have deterred the fishers from diving.

MANTEGNA (Andrew), was born in a village near Padua in 1451, and at first employed in keeping sheep. He was placed with a painter, who adopted him, and made him his heir. At the age of seventeen he was employed to paint the altar of St. Sophia in Padua, and the four evangelists. James Bellini, who admired his talents, gave him his daughter in marriage. Mantegna painted, for the duke of Mantua, the Triumph of Cæsar, which is his chief-d'œuvre, and has been engraved in nine plates. The duke made him knight of his order. The invention of engraving prints with the graver is ascribed to Mantegna. He died at Mantua in 1517.

MANTEL, or

MAN'TLE, *n. s.*, *v. a.* & *v. n.* }

MANTELET,

MAN'TEL-TREE.

Sax. mæn-tel; Swed. and Teut. mantel; Old Fr. mantel; Ital. and Span. manta; barbarous Lat. mantellum. A cloak or cover: mantel and mantel-tree are the cover or work that conceals a chimney; a particular kind of fortification: to mantle is to cover; disguise; protect; spread or diffuse; gather on a surface; to spread out the wings: mantelet is a diminutive of mantel.

His cote armure was of a cloth of tars,
Couched with perles white, and round and grete;
His sandel was of brent gold new ybete;
A mantelet upon his shoulders hanging
Bret-ful of rubies red, as fire sparkling.

Chaucer. Cant. Tales.

By which the beauty of the earth appears,
The divers-coloured mantle which she wears.

Sondys.

We, well-covered with the night's black mantle,
At unawares may beat down Edward's guard,
And seize himself.

Shakspeare. Henry VI.

Poor Tom drinks the green mantle of the standing pool.

Id. King Lear.

As the morning steals upon the night,
Melting the darkness; so the rising senses
Begin to chace the ignorant fumes, that mantle
Their clearer reason.

Id. Tempest.

There are a sort of men whose visages
Do cream and mantle like a standing pond;
And do a wilful stillness entertain,
With purpose to be drest in an opinion
Of wisdom, gravity, profound conceit.

Shakspeare.

My frail fancy fed with full delight
Doth bathe in bliss, and mantleth most at ease;
Ne thinks of other heaven, but how it might
Her heart's desire with most contentment please.

Spenser.

The herald and children are clothed with mantles
of satin; but the herald's mantle is streamered with gold.

Bacon.

It drinketh fresh flowereth, and mantleth exceedingly.

Id.

From the Italians we may learn how to raise fair
mantles within the rooms, and how to disguise the
shafts of chimnies.

Wotton.

Their actions were disguised with *mantles*, very usual in times of disorder, of religion and justice.

Hayward.

The swan with arched neck,
Between her white wings *mantling*, rows
Her state with oary feet. *Milton's Paradise Lost.*

The pair that clad
Each shoulder broad, came *mantling* o'er his breast
With regal ornament. *Id.*

The *mantling* vine
Lays forth her purple grape, and gently creeps
Luxuriant. *Id.*

Before the sun,
Before the heavens thou wert, and at the voice
Of God, as with a *mantle* didst invest
The rising world of waters dark and deep,
Won from the void and formless infinite. *Milton.*

I saw them under a green *mantling* vine,
That crawls along the side of yon small hill,
Plucking ripe clusters. *Id.*
Upon loosening of his *mantle*, the eggs fell from
him at unawares, and the eagle was a third time
defeated. *L'Estrange.*

When *mantling* blood
Flowed in his lovely cheeks ; when his bright eyes
Sparkled with youthful fires ; when every grace
Shone in the father, which now crowns the son.

Smith.

A specious veil from his broad shoulders flew,
That set the unhappy Phaeton to view ;
The flaming chariot and the steeds it shewed,
And the whole fable in the *mantle* glowed.

Addison.

Dan Pope for thy misfortune grieved,
With kind concern and skill has weaved
A silken web ; and ne'er shall fade
Its colours : gently has he laid
The *mantle* o'er thy sad distress,
And Venus shall the texture bless. *Prior.*
You'll sometimes meet a fop, of nicest tread,
Whose *mantling* peruke veils his empty head. *Gay.*
And where his mazy waters flow,
He gave the *mantling* vine to grow
A trophy to his love.

Fenton's Ode to Lord Gower.

If you break any china on the *mantletree* or cabinet,
gather up the fragments. *Swift.*

From plate to plate your eye-balls roll,
And the brain dances to the *mantling* bowl. *Pope.*

His friends around the deep affliction mourned,
Felt all his pangs, and groan for groan returned,
In anguish of their hearts their *mantles* rent,
And seven long days in solemn silence spent.

Young.

Earth receives
Gladly the thickening *mantle* ; and the green
And tender blade, that feared the chilling blast,
Escapes unhurt beneath so warm a veil. *Cowper.*

MANTEL, or MANTLE-TREE, in architecture,
the lower part of a chimney, or that piece of
timber which is laid across the jambs, and sus-
tains the compartments of the chimney-piece.

MANTES, a well built town in the depart-
ment of the Seine and Oise, and on the banks of
the former river. The principal street is termi-
nated by an elegant bridge ; and a fine chateau
is embosomed in woods, on the other side of the
Seine. Population 4300. Thirty-one miles
W. N. W. of Paris.

MANTICHORA, a name given by the Roman
authors to a fierce and terrible creature, which
they describe from the Greeks, who call it some-
times also mantichora : but, when they write more

correctly, martichora and martiora. The name
man-tiger is formed on the sound of the Roman
name, though expressing a very different sense.
The whole story of this animal seems founded on
that affection for the marvellous so common to
travellers ; and probably the mantichora was only
a species of the large hyæna, which being at first
ill described, afterwards more and more wonders
were added, till all shadow of truth was lost.

MANTINCEA, in ancient geography, a town
situated in the south of Arcadia, on the confines of
Laconia (Ptolemy), called afterwards Antigonea,
in honor of king Antigonus. It is memorable
for a battle fought in its neighbourhood, between
the Thebans and Spartans, in which fell the
celebrated commander Epaminondas. See
THEBES.

MANTIS, in entomology, a genus of insects
belonging to the order of hemiptera, the charac-
ters of which are these : the head is unsteady,
and appears, from its continual nodding motion,
to be but slightly attached to the thorax : the mouth
is armed with jaws, and furnished with filiform
palpi : the antennæ are setaceous : the four wings
are membranaceous, and wrapped round the
body ; the under ones folded : the anterior or first
pair of feet are compressed, armed on the under
side with teeth like a saw, and terminated by a
single nail or crochet : the four hindermost are
gressorii, or formed rather for advancing slowly
than for performing quick movements. The
thorax is extended to a considerable length, nar-
row, and throughout of equal size. The name
mantis denotes soothsayer, because it has been
imagined that this insect, by stretching out
its fore feet, divined and pointed out those things
that were asked of it. The insect often rests on
its four hinder legs only, and, holding the two
fore ones raised up, joins them together, which
has occasioned its being called by the people of
Languedoc, where it is very common, *pregadieu*,
as if it prayed to God. They also say, that this
creature shows the way when asked, because it
stretches its fore legs sometimes to the right, and
sometimes to the left : and indeed it is considered
as almost sacred, and must not be hurt. Its
color is all over of a brownish green. The young
ones have more of the green, the old more of the
brown, cast. It deposits its eggs collected into
a hemispherical parcel, flat on one side ; and con-
taining two rows of oblong eggs placed trans-
versely, and one row of shells placed longitudi-
nally, in form of a roof, one over the other, which
cover the joining of the two rows of eggs. The
whole parcel is light, and as it were composed of
very thin parchment. The insects, in their most
perfect state, are generally of very beautiful green
colors, which soon fade, and become the color of
dead leaves. Their elytra, bearing so strong a re-
semblance to the leaves of some plants, have
procured them the name of creeping or walking
leaves. See ENTOMOLOGY.

MANTLE, or MANTLING, in heraldry, that ap-
pearance of folding of cloth, flourishing, or dra-
pery, which in any achievement is drawn about
a coat of arms. See HERALDRY.

MANTO, in fabulous history, the daughter of
Tiresias, and like her father strongly inspired with
prophecy. She was so highly esteemed, that,

when the Argives pillaged Thebes, they thought they could not acquit their vow of consecrating to Apollo the most precious thing in their plunder, without offering to him this young woman. She was therefore sent to the temple of Delphi. But this did not engage her in any vow of continence; for she bore a son called Amphiloehus to Alcmeon, who had been generalissimo of the army which took Thebes; and a daughter named Tisiphone. These children were the fruits of an amour carried on during the madness which had seized Alcmeon, after he had put his mother to death. Virgil says she went into Italy, and had a son who built Mantua.

MAN'TUA, *n. s.* } Fr. *mantau*; Spanish
MAN'TUAMAKER. } *manto*, a mantle. A lady's
gown or dress: a dress maker.

By profession a *mantuamaker*: I am employed by the most fashionable ladies. *Addison's Guardian.*

Not Cynthia, when her *mantua's* pinned awry,
E'er felt such rage, resentment, and despair,
As thou, sad virgin! for thy ravished hair. *Pope.*

How naturally do you apply your hands to each other's lappets, ruffles, and *mantuas*. *Swift.*

MAN'TUA, a province of Austrian Italy, adjoining the duchies of Parma and Modena. It has a superficial extent of 880 square miles; and a population of 214,000. The surface of the country is level and fertile, being watered by the Po, the Oglio, the Mincio, the Secchio, and several smaller streams. The chief products are corn, rice, hemp, flax, fruit, and vines. Little wood is found in this province; and some marshy tracts are unproductive: the mineral productions are also inconsiderable. The former duchy was of larger extent than the present province of this name. The Gonzaga family acquired it in the fourteenth century, and continued to govern it until the war of the Spanish succession, when the reigning duke espoused the Bourbon cause, and lost this territory to Austria in 1706. In 1796, being seized by the French, it was formed into the department of the Mincio, in the temporary kingdom of Italy, but was restored to the empire in 1814.

MAN'TUA, in ancient and modern geography, a city of Italy, and now the capital of the Austrian district or delegation of this name. It was anciently a town of Gallia Transpadana, and situated on the Mincius, a river running from the lake Benacus. It is said to have been founded even before Rome, by Bianor or Ocnus, the son of Manto; and was the ancient capital of Etruria. When Cremona, who had followed the interest of Brutus, was given to the soldiers of Octavius, Mantua also, which was in the neighbourhood, shared the common calamity, and many of the inhabitants were tyrannically deprived of their possessions. Virgil, who was among them, and a native of the town, applied for redress to Augustus, and obtained it on account of his poetical talents.

In modern times it has always held a distinguished rank, and is a large city, having eight gates and about 20,000 inhabitants. The streets are broad and straight, and the houses well built. It is very strong by situation as well as by art; lying in the middle of the Lago di Mantua, formed by the river Mincio. This lake

is twenty miles in circumference, and two broad having four different ramifications, called the lakes of Mezo, Paivolo, Sopra, and Sotto. There is no access to the city but by two causeways which cross this lake, and which are strongly fortified; so that the city has been considered as one of the strongest in Europe; and the allies in 1745, though their army was in the duchy, durst not undertake the siege. On the main land opposite is the important suburb of Ceres. Mantua was besieged, however, by the French in 1796, and first invested by order of Buonaparte on the 4th of June. On the 16th of July the garrison made a sortie, but were forced to retreat with the loss of 600 men. On the 18th the French opened their trenches, and on the 19th set fire to the city in various places. On the 29th general Wurmser attacked the French lines, destroyed their trenches, relieved the fort, raised the siege, and took 140 pieces of cannon. But on the 24th of August following, the French, under general Sahuguet, again blockaded the town; and on the 15th of September forced the Austrians to retire into it, with a loss of 2500 men, twenty cannon, &c., and took Fort St. George. On the 23d of November general Wurmser made a third sortie, with the loss of 200 men; and at last, after having been reduced to such straits that 5000 horses were killed and eaten during the siege, he surrendered it to the French by capitulation, on the 2d of February 1797, with 559 cannon, 17,115 small arms, a vast quantity of other military stores, and the whole remains of his army. In July 1799 Mantua was again besieged by the Austrians under general Kray, to whom it at last surrendered.

The public squares are spacious and elegant. Of the latter, the most noted is the Piazza di Virgilio, used as a promenade. In its centre is a column of marble called Virgil's monument, resting on a pedestal of the same material, with a bronze statue of the poet at top. On the four sides of the pedestal are suitable inscriptions. The cathedral of Mantua is a beautiful building, nearly on the same plan as the church of Santa Maria Maggiore at Rome. It is surmounted by a fine dome, and adorned in the interior with Corinthian pillars, and a number of paintings. Of the other churches of the city the only one that deserves notice is that of St. Andrew, the interior of which is finely painted. The other buildings are the Palazzo della Giustizia; the palace of the Gonzaga family; the one which, from its shape, bears the name of the Palazzo di T.; and the Corte with its hall. Besides these, may be mentioned the university, an arsenal, the Jewish synagogue, and the public library. Mantua also contains several valuable collections of paintings, and a gallery of antiquities, belonging to the Academy of Arts.

Between 4000 and 5000 Jews live in a distinct quarter of the town, and have a considerable share of the trade: which in the silk manufactory and its adjuncts is still considerable; those of leather and woollens are also of importance. In summer and autumn, from the stagnation of the waters of the lake, the air becomes unhealthy, and the better classes retire to the neighbouring shores. It is seventy miles W. S.

W. of Vienna, and the same distance E. S. E. of Milan.

MANTUAN (Baptist), a famous Italian poet, born at Mantua in 1448. He took his name from the town, being an illegitimate child. In his youth, he applied to Latin poetry, which he cultivated all his life. He entered among the Carmelites, and became general of the order; though he quitted that dignity upon some disgust in 1515, and died the year following. The duke of Mantua, some years after, erected a marble statue to his memory crowned with laurel, and placed it next to that of Virgil. His works were collected and published at Paris, in 3 vols. folio, in 1513, with the commentaries of St. Murron, S. Brant, and I. Badius.

MAN'UAL, *adj.* & *n. s.* } All of Lat. *manus*,
MAN'UARY, } the hand. **Manual**
MAN'UBRIUM, } is, performed or used
MANUDUC'TION. } by the hand; a small
 book, or one that may be conveniently carried in the hand: *manuary* is used as a substantive, by Bishop Hall, as synonymous with *manual*: *manubrium*, a handle: *manuduction*, guidance by the hand.

For what learning is that, which the seas, or Alps, or Pyrenees have engrossed from us? what profession, either liberal or *manuary*, wherein the greatest masters have not been at least equalled by our home-bred islanders?

Bp. Hall.

The treasurer obliged himself to procure some declaration under his majesty's sign *manual*.

Clarendon.

This *manual* of laws, stiled the confessor's laws, contains but few heads.

Hale's Common Law of England.

That they are carried by the *manuduction* of a rule, is evident from the constant regularity of their motion.

Glanville.

We find no open tract, or constant *manuduction*, in this labyrinth.

Brown's Vulgar Errors.

Though the sucker move easily enough up and down in the cylinder by the help of the *manubrium*, yet, if the *manubrium* be taken off, it will require a considerable strength to move it.

Boyle.

In those prayers which are recommended to the use of the devout persons of your church, in the *manuals* and offices allotted them in our own language, they would be careful to have nothing they thought scandalous.

Stillingfleet.

The speculative part of painting, without the assistance of *manual* operation, can never attain to that perfection which is its object.

Dryden's Dufrenoy.

This is a direct *manuduction* to all kind of sin, by abusing the conscience with undervaluing persuasions concerning the malignity and guilt even of the foulest.

South.

MANUAL is a service book used in the church of Rome, containing the rites, directions to the priests, and prayers used in the administration of the sacraments, the form of blessing holy water, and the service used in processions.

The **MANUAL** and **PLATOON EXERCISE**, in the army, no longer makes a regular part of a review, but only is gone through, when particularly called for by the reviewing general. Sentries posted with shouldered arms are permitted afterwards to support, but not to slope them. On the approach of an officer they immediately carry their arms, and put themselves into their proper position, which is not to be done at the

instant he passes, but by the time he is within twenty yards of their post, so that they may be perfectly steady before he comes up. Corporals marching with reliefs, or commanding detachments, or divisions, will carry their arms advanced; for which purpose, a soldier, when promoted to that rank, must be taught the position of advanced arms. There are some peculiar words of command at the manual exercise of the grenadiers, when apart from the battalion, and also for the cavalry and artillery.

MANUDUCTOR, from Latin, *manus*, hand, and *duco*, I lead, an ancient officer in the Latin church, who, from the middle of the choir, gave the signal for the choristers to sing, and marked the measure, beat time, and regulated the music. The Greeks called him *Mesachoros*, because seated in the middle of the choir.

MANUEI (Pierre), a demagogue of the French revolution, born in low life, was yet well educated, and, going to Paris young, commenced his career as an author, by publishing *Essai Historique et Politique sur la Vie de St. Louis*. He then became tutor in a banker's family, from which he obtained a small pension. Resuming his pen, he produced several pamphlets, among which was one called *La Police Devoilée*, for which he was sent for a short time to the Bastille. On the occurrence of political commotions, he became a partizan of the jacobin principles. In 1789 he had an office under the municipality of Paris; and in November 1791 obtained the place of attorney of the commune. He was for a time one of the most active and dangerous enemies of royalty, and appears to have been deeply implicated in the massacres which took place in the beginning of September 1792. Immediately after he was nominated a deputy to the national convention, when he detached himself from the jacobin party; and on the trial of the king voted for his imprisonment during the war. Other unpopular measures which he advocated obliged him to resign in January 1793, and he retired to Montargis his native place, we believe, where he narrowly escaped being assassinated: a few months after he was arrested, and sent to the scaffold November 14th, 1793.

MANUFACTURE, *n. s.* & *v. a.* } Fr. *ma-*
MANUFACTORY, *n. s.* } *nufacture*,
MANUFACTURER. } Lat. *manus*,
 and *facio*, to make.

The art or practice of constructing any piece of workmanship; any thing made by art: to make by art or labor; employ in work, or work up: a manufactory is a place where such work is ordinarily performed: a manufacturer, the proprietor, conductor, or workman.

Heaven's power is infinite: earth, air, and sea,
 The *manufacture* mass the making power obey.

Dryden.

The peasants are clothed in a coarse kind of canvas, the *manufacture* of the country.

Addison.

In the practice of artificers and the *manufacturers* of various kinds, the end being proposed, we find out ways of composing this for the several uses of human life.

Watts.

May not the peaceable, the industrious inhabitant of Manchester say, I call upon the laws to afford me

protection; and, if the laws in this country cannot afford it, depend upon it, I and my *manufactures* must emigrate to some country where they can.

Canning.

MANUMISE, v. a. } *Lat. manumitto.* To
MANUMISSION, n. s. } set free; dismiss or dis-
MANUMIT, v. a. } charge from bondage:
the first of these verbs seems altogether redundant in our language: manumission is the act or instrument whereby liberty is given.

A constant report of a danger so imminent run through the whole castle, even into the deep dungeons, by the compassion of certain *manumised* slaves.

Knolles.

Slaves wore iron rings until their *manumission* or preferment.

Browne's Vulgar Errors.

He presents

To thee, renowned for piety and force,
Poor captives *manumised*, and matchless horse.

Waller.

Thou wilt beneath the burden bow,
And glad receive the *manumitting* blow
On thy shaved slavish head.

Dryden's Juvenal.

Manumit and release him from those drudgeries to vice, under which those remain who live without God.

Government of the Tongue.

The pileus was somewhat like a night-cap, as the symbol of liberty, given to slaves at their *manumission*.

Arbuthnot.

Happy day that breaks our chain;
That *manumits*; that calls from exile home.

Young.

MANUMISSION is derived from the Latin *manus*, hand, and *mittere*, to send; *quia servus mittebatur extra manum seu potestatem domini sui*. Some authors define *manumission* an act by which a lord enfranchises his tenants, who till that time had been his vassals, and in a state of slavery. Among the Romans, the *manumission* of slaves was performed three ways: 1. When, with his master's consent, a slave had his name entered in the census or public register of the citizens. 2. When the slave was led before the prætor, and that magistrate laid his wand, called *vindicta*, on his head. 3. When the master gave the slave his freedom by his testament. *Servius Tullius* is said to have set on foot the first manner; and *P. Valerius Publicola* the second. A particular account is given of the third in *Justinian's Institutes*. It was not necessary that the prætor should be on his tribunal to perform the ceremony of *manumission*: he did it any where, in his house, in the street, &c. He laid the rod on the slave's head, pronouncing these words, *Dico eum liberum esse more Quiritum*, 'I declare him a freeman, after the manner of the Romans.' This done, he gave the rod to the lictor, who struck the slave with it on the head, and afterwards with his hand on his face and back; and the notary or scribe entered the name of the new freeman in the register, with the reasons of his *manumission*. The slave had likewise his head shaved, and a cup given him by his master as a token of freedom. *Tertullian* adds, that he had then also a third name given him: if this were so, three names were not a token of nobility, but of freedom. *Constantine* ordered the *manumissions* at Rome to be performed in the churches. Of *manumission* there have also been various forms

in England. In the time of William I. villeins were *manumitted*, by the master delivering them by the right hand to the viscount, in full court, showing them the door, giving them a lance and a sword, and proclaiming them free. Others were *manumitted* by charter. There was also an implicit *manumission*; as, when the lord made an obligation for payment of money to the bondman at a certain day, or sued him where he might enter without suit, and the like.

MANURE, v. a. & n. s. } *Fr. manouvreur*;
MANURABLE, adj. } *Lat. manu operor.*
MANURANCE, n. s. } To cultivate or dress
MANUREMENT. } by manual labor:

hence to dung, or fatten land by art; the dung or compost so used: *manurable* is capable of or fit for cultivation: *manurance* and *manurement*, cultivation; improvement.

As the fertilest ground must be *manured*; so must the highest flying wit have a *Dædalus* to guide him.

Sir P. Sidney.

Although there should none of them fall by the sword, yet they being kept from *manurance*, and their cattle from running abroad, by this hard restraint they would quickly devour one another.

Spenser on Ireland.

The *manurement* of wits is like that of soils, where, before the pains of tilling or sowing, men consider what the mould will bear.

Wotton on Education.

They mock our scant *manuring*, and require
More hands than ours to lop their wanton growth.

Milton.

This book gives an account of the *manurable* lands in every manor.

Hale's Origin of Mankind.

When the Nile from Pharian fields is fled,

The fat *manure* with heavenly fire is warmed.

Dryden.

Mud makes an extraordinary *manure* for land that is sandy.

Mortimer's Husbandry.

Revenge her slaughtered citizens,

Or share their fate: the corps of half her senate

Manure the fields of Thessaly, while we

Sit here, deliberating in cold debates.

Addison.

Fragments of shells, reduced by the agitation of the sea to powder, are used for the *manuring* of land.

Woodward.

MANURE. See **RURAL ECONOMY.**

MANUSCRIPT, n. s. *Fr. manuscrit*; Latin *manuscriptum*. A written book; any writing.

Any *manuscript* roll, written by the hand of a famous man, is laid up amongst our jewels.

Bp. Hall.

Her majesty has perused the *manuscript* of this opera, and given it her approbation.

Dryden.

A collection of rare *manuscripts*, exquisitely written in Arabic, and sought in the most remote parts by the diligence of *Erpenius*, the most excellent linguist, were upon sale to the jesuits.

Wotton.

He grinds divinity of other days

Down into modern use: transforms old print

To zig-zag *manuscript*, and cheats the eyes

Of gallery critics by a thousand arts.

Cowper

A **MANUSCRIPT** is a book or paper written with the hand; by which it stands opposed to a printed book or paper. A *manuscript* is usually denoted by MS. and in the plural by MSS.: public libraries are principally valuable for the number of ancient MSS. deposited in them. In examining MSS. that were written before the invention of printing, it is necessary to know

their nature, to be able to read them freely and without error, and to judge of their antiquity. As there are scarcely any of the ancient codes now remaining written on the Egyptian paper, or on wood, ivory, &c., we have only to consider those that are written on parchment or vellum, membraneous, and such as are written on paper, chartaceos. The former are in most esteem. With regard to the character, these codes are written either in square and capital letters, or in half square, or round and small letters. Those of the first kind are the most ancient. There are no intervals between the words, no letters different from the others at the beginning of any word, no points, nor any other distinction. The codes that are written in letters that are half square resemble those we have in Gothic characters, as well for the age as the form of the letters. Such as are written in round letters are not so ancient as the former, and are not older than the ninth or tenth century. These have spaces between the words, and some punctuation. They are likewise not so well written as the preceding, and are frequently disfigured with comments. The codes are divided, according to the country, into Lombard, Italian, Gaulic, Franco-Gaulic, Saxon, Anglo-Saxon, &c. In the ancient Greek books, they frequently terminated the periods of a discourse, instead of other divisions, by lines; and these divisions were called in Latin *versus*, from *vertendo*: for which reason these lines are still more properly named *versus* than *linæ*. At the end of a work, they put down the number of verses of which it consisted, that the copies might be more easily collated; and it is in this sense we are to understand Trebonius, when he says, that the pandects contain 150,000 *pene versuum*. These codes were likewise *vel probæ vel deterioris notæ*, more or less perfect, not only with regard to the calligraphy or beauty of the character, but to the correction of the text. In ancient codes, the abbreviations are distinguished according as they have been used in different centuries. Thus, for example, A. signifies Aulus; C. Caius; D. Decimus; Ap. Appius; Cn. Cneius; Aug. Imp. Augustus Imperator. The characters that are called *notæ* are such as are not to be found in the alphabet; but which notwithstanding, signify certain words. All these are explained in a copious manner by Vossius, and in the *Chronicon Gotvicense*. See ABBREVIATION. Lastly, the learned divide all the ancient codes into *codices minus raros, rariores, editos, et anecdotos*.

MANUTIUS (Aldus), the first of those celebrated Venetian printers who were as illustrious for their learning as for their great skill in their profession. He was born at Bassano in Italy about the middle of the fifteenth century; and hence is sometimes called *Bassianus*, though generally better known by the name of Aldus. He was the first who printed Greek neatly and correctly; and acquired so much reputation by it, that whatever was finely printed was proverbially said to have 'come from the press of Aldus.' He published a Greek grammar; with *Notes upon Homer, Horace, &c.* He died at Venice in 1516.

MANUTIUS (Paul), the son of Aldus, was brought up as a printer, and acquired, by a continual reading of Tully, such a purity in writing Latin, that even Scaliger allows has been scarcely ever exceeded. Pope Pius IV. placed him at the head of the apostolical press, and gave him the charge of the Vatican library. His *Epistles* are highly labored and very correct. He had also a very profound knowledge of antiquity; and he published an edition of Cicero's works, with *Commentaries*, in 4 vols. folio, Venice, 1523. He also published an original work, *De Legibus Romanorum*; which is reckoned his masterpiece. He died in 1574.

MANUTIUS (Aldus), the Younger, the son of Paul, was esteemed one of the most learned men of his time. Clement VIII. gave him the direction of the Vatican printing-house; but probably the profits of that place were very small, as Manutius was obliged to accept of a professorship of rhetoric, and to sell the excellent library which his father and uncle had collected with extraordinary care, and which contained 80,000 volumes. He died in Rome in 1597. He wrote, 1. *Commentaries on Cicero*. 2. A *Treatise on Orthography*. 3. Three books of *Epistles*; and other works in Latin and Italian, which are esteemed.

MAN'Y, *adj. & n. s.* Sax. *mænig*; written also in Saxon, according to Mr. Lye, *mænegeo*, *MAN'Y-CORNERED*, *mænego*, *mænigeo*, *MAN'Y-HEADED*, *mænigo*, *mænizu*, *MAN'Y-LANGUAGED*, *mænigo*, *mænizu*, *MAN'Y-PEOPLED*, *mænio*, *mæniu*, *MAN'Y-TIMES*, *adv.* *nýgeø*, *mænegeo*, *mænizu*, *manige*, *manigo*, *menegeo*, *menezo*, *menegu*, *menigeo*, *menigo*, *menizu*, *menio*, *meniu*: all of which Mr. Thomson traces to the Goth. *ma*, much, and *anig*, some or any. Numerous; several; considerable or indefinite in number; powerful: a multitude; a large number, taken collectively: the compounds do not seem to require explanation.

For *manye* schulen come in my name, and schulen seye, I am Crist; and thei schulen disceyve *manye*.

Wiclif. *Matth.* xxiv.

Both men and women, as *many* as were willing-hearted, brought bracelets.

Exodus xxxv. 22.

He from the *manypeopled* city flies;

Contemns their labours, and the divers cries.

Sandys.

Some of the wiser, seeing that a popular licence is indeed the *manypeopled* tyranny, prevailed with the rest to make Musidorus their chief.

Sidney.

After him the rascal *many* ran,

Heaped together in rude rabblement.

Fucria *Queen*.

The proud Duessa came,

High mounted on her *manypeopled* beast. *Id.*

O thou fond *many*! with what loud applause

Did'st thou beat heaven with blessing Bolingbroke.

Shakespeare.

A care-craz'd mother of a *many* children. *Id.*

Thou art a collop of my flesh,

And for thy sake have I shed *many* a tear. *Id.*

He hears not me, but on the other side,

A *manycoloured* peacock having spy'd,

Leaves him and me.

Donne.

When *many* atoms descend in the air, the same cause which makes them be *many*, makes them be light in proportion to their multitude.

Digby.

The *manyheaded* beast hath broke,
Or shaken from his head, the royal yoke.

Denham.

This yet I apprehend not, why to those
Among whom God will deign to dwell on earth,
So *many* and so various laws are given;
So *many* laws argue so *many* sins.

Milton.

The vulgar and the *many* are fit only to be led
or driven, but by no means fit to guide themselves.

South.

So *many*, and *many* more than I can express,
vastly great and precious advantages do accrue from
piety.

Barrow.

The apostles never give the least directions to
Christians to appeal to the bishop of Rome for a
determination of the *many* differences which, in
those times, happened among them.

Tillotson.

Broad were their collars too, and every one
Was set about with *many* a costly stone.

Dryden.

There, parting from the king, the chiefs divide,
And wheeling East and West, before their *many* ride.

Id.

Search those *manycornered* minds,
Where woman's crooked fancy turns and winds.

Id.

Those were the preludes of his fate,
That formed his manhood to subdue
The hydra of the *manyheaded* hissing crew. Id.
He is beset with enemies, the meanest of which is
not without *many* and *many* a way to the wreaking
of a malice.

L'Estrange.

Many a child can have distinct clear ideas of two
and three long before he has any idea of infinite.

Locke.

Seeing a great *many* in rich gowns, he was amazed
to find that persons of quality were up so early.

Addison's Freeholder.

They are Roman catholic in the device and le-
gend, which are both *manytimes* taken out of the
Scriptures.

Addison.

The hoary majesty of spades appears;
Puts forth one *manly* leg, to sight revealed,
The rest his *manycoloured* robe concealed.

Pope.

Seek Atrides on the Spartan shore;

He, wand'ring long, a wider circle made,

And *manylanguaged* nations has surveyed.

Id.

Near yonder copse, where once a garden smiled,
And still where *many* a garden flower grows wild;
There, where a few torn shrubs the place disclose,
The village preacher's modest mansion rose.

Goldsmith.

Thus *many* a sad to-morrow came and went,

Till, all my stock of infant sorrow spent,

I learned at last submission to my lot,

But, though I less deplored thee, ne'er forgot.

Couper.

MAOUNA, or MASSACRE ISLAND, one of the
Navigator's islands of the South Pacific Ocean,
discovered by Bougainville, and visited by La
Perouse, who calls it a beautiful and fertile
island, producing the bread-fruit, orange trees,
cocoa-nut, banana, guava, and plenty of fowls,
hogs, and dogs. In the space of twenty-four
hours he procured 500 hogs here, and an im-
mense quantity of fruit. But the inhabitants,
when M. Langle, commander of the *Astrolabe*,
landed, attacked him; and, in the course of the
conflict which ensued, he and ten companions
were killed, and twenty others wounded. Ed-
wards calls this island *Otutne*. Long, of the
anchoring place 189° 1' E., lat. 14° 22' S.

MAP, *n. s. & v. a.* } Barb. Lat. *mappa*, a
MAPPERY, or } table cloth; Ital. Span.
MAPPING, *n. s.* } and Port. *mappa*; Fr.
mappe; Belg. *map*. A delineation or picture of
some part of the earth's surface: and hence of
the heavens; to delineate, or draw such picture;
mappery and mapping mean the art of making
maps.

Zelmae earnestly entreated Dorus, that he would
bestow a *map* of his little world upon her, that she
might see whether it were troubled with such un-
happily climb of cold despairs, and hot rages, as
hers was.

Sidney.

I will take the *map* of Ireland, and lay it before
me, and make mine eyes my schoolmasters, to give
my understanding to judge of your plot.

Spenser.

I am near to the place where they should meet,
if Pisanio have mapped it right.

Shakespeare's Cymbeline.

The still and mental parts,

That do contrive how many hands shall strike

When fitness calls them on;

They call this bedwork, mappery, closet war.

Shakespeare.

Old coins are like so many *maps* for explaining
the ancient geography.

Addison on Ancient Coins.

O'er the *map* my finger taught to stray,

Cross many a region marks the winding way,

From sea to sea, from realm to realm I rove,

And grow a mere geographer by love.

Titchel.

Opening the *map* of God's extensive plan,

We find a little isle, this life of man;

Eternity's unknown expanse appears

Circling around and limiting his years.

Cowper.

MAPS are amongst the contrivances of art not
strictly scientific: being designed to represent
on a plane surface that which is in reality spher-
ical, i. e. some portion or the whole of the
earth's surface. It is clear that on a globe alone
can such a representation be accurately made;
but, on a scale which would make the map of
England extend only about six inches from north
to south, i. e. giving one degree of latitude to an
inch, the diameter of a globe, on which the whole
surface of the earth should be delineated, would
be upwards of nine feet and a half; while such
a map must omit all the minute divisions of the
countries of the earth; together with a vast body
of geographical and statistical distinctions, inval-
uable to geography as a science. For all the ordinary
purposes, therefore, of representation, and even
for the proper investigation and communication
of numerous geographical discoveries, recourse
has been had to the various descriptions of plane
maps; and the most eminent geographers have
devoted their attention to the projection or ar-
rangement of the proportional parts of them.
The principal projections that have been sug-
gested, are, 1. By development; 2. The ortho-
graphic; 3. The stereographic; 4. The globular;
5. Mercator's. The *central* projection, so called
because it places the eye of the spectator in the
centre of the sphere and the plane of projection
tangential to its surface, may be also here men-
tioned; but it so distorts by enlargement the
portions of land and sea near the margin of the
map, that it is rarely used.

1. *The projection by development* demands our
first consideration, not from its being in such
constant use as those which follow, but for its

nearer approximation to the actual form of the earth's surface. It is therefore the basis of the construction of the spindles or gores of artificial globes. See our article *GLOBES*.

The cone and the cylinder are both approximations in shape to the sphere; and, in regard to maps, as Mr. Jamieson observes, each has its advantage and disadvantage as a basis of development. The conic method of development is best adapted to represent countries to any extent in the difference of longitude, or round the whole circumference of the earth, if required to a certain extent in difference of latitude; and the cylindric method is well adapted to represent countries contained between any two parallels of latitude, but not having any considerable difference of longitude.

The conical projection is, however, the most simple and easy of construction, on account of the facility of describing the parallels of latitude in concentric circles, and the meridians in straight lines. In comparing a spherical zone to a truncated cone, in order to construct its development, we view the parallels as circles described from the summit of the cone taken as a common centre; and the meridians are right lines subjected to pass through that point. It is evident that the result will approach the nearer, in proportion as the map shall embrace less extent in latitude.

In this projection it may be supposed that the cone is tangential to the middle parallel of the map, and in consequence exterior; or that it may be in part inscribed in the sphere, that is to say, formed by the secants in the meridians. In the first case, the map will only be exact on the middle parallel, which will preserve in its development the length which it really possesses on the sphere; but the parallels placed above and beneath will exceed those on the sphere, which are correspondent. The Rev. Patrick Murdoch proposes (*Philos. Trans.* vol. 50, Part II., for 1758, p. 553), to substitute to the tangent cone, a cone partly inscribed and determined by this condition, 'that the part of the area comprehended in the map should be equivalent to that of the spherical zone which it represents.'

It may be difficult, at first sight, to conceive that the surface of the globe can be represented by a part of the surface of a cone; yet, we may easily form the surface of a cone, of any plain piece of paper cut into a circular form or base; and can as easily conclude, that if a cone, about twice the height of the semi-diameter of the globe, were to be conceived as standing on the same base with the hemisphere, namely, on the equator, the surface of such a cone would in part lie within the surface of the globe; and then, that the surface of the globe, at so small a distance from the surface of the cone, might be very easily projected or delineated on it; and, in such a case, the projection of the countries and their bearings, distances, &c., will be very nearly the same on the surface of the included part of the cone, as on that of the globe itself.

Mr. Murdoch observes, that when any portion of the earth's surface is projected on a plane, or transferred to it by whatever method of description, the real dimensions, and often the figure

and position of countries, are much altered and misrepresented. In most works of this kind we find the linear dimensions visibly false, and the intersections of the circles oblique; so that a quadrilateral space shall often be represented by an oblique angled rhomboid figure, whose diagonals are very far from equal; and yet, by a strange contradiction, you shall see a scale of distances inserted in such a map.

'The last of these blemishes,' says Mr. Jamieson, 'is removed, and the other lessened, in some maps of Schenk's of Amsterdam, a map of the Russian empire, the *Germania Critica* of the famous professor Meyer, and a few more. In these the meridians are straight lines, converging to a point, from which, as a centre, the parallels of latitude are described, and a rule has been published for the drawing such maps. But, as that rule appears to be only an easy and convenient approximation, it remains still to be enquired, what is the construction of a particular map that shall exhibit the superficial and linear measures in their true proportions?'

In answer to this question he proposes the following construction:—Suppose that *APR* (fig. 1. plate 1, *MAPPING*) is one half of a sphere or globe of one inch and nine-tenths in diameter, and that we are to develop one-half of this half sphere on a plane surface; the development would be one-half of the whole sphere or globe, of which *APR* is a half. But, were this half sphere cut in two, *APR* would be its plane of projection, being the plane of that meridian in which the semi-sphere was bisected, and we should then consider *APR* merely as an arc of a great circle of the sphere; it would be a semicircle. Let, then, this semicircle be bisected by the perpendicular *KP*; let the quadrant *AP* be divided into nine equal parts in the points *B, C, D*, &c.; let the radii *KB, KC*, &c., be drawn; and draw also the tangents *Bb, Cc*, &c., to meet the perpendicular *KP* produced indefinitely towards *S*. Now from *A* as a centre (fig. 2), with a division of the quadrant, fig. 1, set off on fig. 2 the equal spaces *AB, BC, CD*, &c. With the radius *AP*, fig. 2, describe the semicircle *lPl*, and this semicircle shall be a development of the semi-spheric surface *APR*; that is, *lPl* shall be a development of the fourth part of that sphere of which *APR* is one-fourth part. For, if we draw chords to the divisions or arcs, *AB, BC*, &c., fig. 1, the quadrantal arc *AP* will then circumscribe the fourth part of a polygon of thirty-six sides; and if we transfer those chords to fig. 2, by the distances *AB, BC*, &c., the whole line *AP*, fig. 2, shall be equal to the sum of all the chords of the arc of the quadrant *AP*, fig. 1; and, therefore, the semicircle *lPl*, fig. 2, shall be a development of the spheric surface *APR*, fig. 1.

To draw the parallels in the semicircle, fig. 2, produce *AP* indefinitely beyond *P*, and on this line transfer the tangents of latitude, that is *Bb, Cc, Dd*, &c., from fig. 1, and they will be centres about which to describe the parallels of fig. 2. Thus, for example, the tangent *Bb*, fig. 1, being the radius of the parallel that passes through *B*, fig. 2, you must in *AP* (fig. 2) produced, set off with your compasses a space equal

to the tangent *Bb*, fig. 1; and from the point beyond *P*, fig. 2, as a centre, describe the parallel passing through *B*. Do the same by the others, and all the parallels will be drawn.

To describe the *meridians*, divide *A l*, *A l*, each into nine equal parts; do the same with each of the other parallels, and draw curvilinear lines through the corresponding divisions of the parallels; so shall the meridians be drawn for fig. 2.

Fig. 3 shows how a map of this kind may be constructed, when you are not going to develop any given spheric surface. From *O* as a centre, with any radius *OC*, describe the semicircle *APC*; draw *OP* at right angles to *AC*; divide the radii *OA*, *OC*, *OP*, each into nine equal parts; through the points of division in *OP* draw from the point *A* the diverging lines *A 10*, *A 20*, &c.; and from *O* draw the radii *O 10*, *O 20*, &c., to the points where those diverging lines are terminated by the arc *CP*. Then, from the extremities of the radii *O 10*, *O 20*, &c., draw the tangents *10*, *20*, &c., meeting *OP* produced indefinitely; so shall the points *10*, *20*, *30*, &c., in *OP* produced, be centres, about which to describe the parallels of latitude.

Having drawn these parallels, divide each of them into nine equal parts, and through the corresponding divisions of each parallel draw curvilinear lines, which will be the meridians required. The other semicircle, following the same process, will complete the planisphere according to the method of development. But it must be observed that, as the meridians are not subject to any geometrical problem for describing a circle, they must be drawn with a steady hand through their respective points.

'This is a very near approximation to the truth,' says our author, 'a very near development of the surface of the globe. All the meridians and parallels intersect each other at right angles. The successive quadrilaterals between any two meridians are nearly equal in area, and similar to those on the globe; those adjoining the central meridian are almost exactly the same as their correspondents on the sphere. Every parallel of latitude is equally divided by the meridians as they are on the globe; and every parallel, as terminated by two meridians on the map, is exceedingly near the same length as the corresponding part on the globe itself. It must, however, be observed, that the meridians are here represented of different lengths, all longer than those on the globe, except *AP*, the central one. In this respect the method of development is the converse of every meridional projection of the sphere, every meridional projection diminishing the meridians as they approach the centre of the map; but even in this respect it is less defective in the lengths of the meridians than is Mr. Murdoch's with respect to the parallels of latitude. However, since the central meridian answers as a scale, the length of every meridian can be correctly ascertained; and the method of development may, upon the whole, be considered the most correct and the easiest of construction of any yet published. It may be employed in the construction of the largest maps as well as the smallest, and will be the more exact, in proportion as the difference of longitude is less.'

Euler investigated the properties of the conical projection, with a design to render the errors at the two extreme parallels of the map equal to those at the middle parallel. That these conditions might be fulfilled, he found that the distance of the common centre of all the parallels from the surface of the sphere should be equal to 5° of lat.; that the angle comprised between two meridians, which include 1° of lat. on the globe, is reduced on the map to $48' 44''$; and that the difference between the arc of a great circle, which measures the least distance between two points on the globe, and the right line which represents it on the map, is such, that an arc of 90° has upon the map a length equal to $90^\circ 79'$.

Some geometers, as Delisle (in the construction of his general Map of the Russian Empire), adopted for the cone, the surface of which was to be developed, that which cut the sphere in two parallels of latitude, equi-distant from the extremes and the middle parallel. By this means the map had the same extent on these two circles as upon the corresponding parts of the globe; and the extent of the whole map differed little from that of the spherical surface it was designed to represent; the excess towards its extremities being nearly compensated by the defect in the middle, which formed the inscribed portion of the conical surface. Delisle's map extended from the lat. of 40° to 70° ; the middle parallel, therefore, answered to 55° , and the two parallels common to the map and the globe were those of $47^\circ 30'$, and $62^\circ 30'$. This projection presents several advantages in maps of considerable extent, as those of a large empire. Then if *L* and *L'* denote the latitudes of the two parallels which are common to the map and the globe, it has been shown (Poussant's Topographie) that the radii, *R* and *R'*, of the respective parallels are expressed by the following formula, viz.

$$R = \frac{\cosine L}{\sin \frac{1}{2}(L+L')}, \text{ and } R' = \frac{\cosine L'}{\sin \frac{1}{2}(L+L')}.$$

Hence, if *L* denote the latitude of the greater of the two parallels above-mentioned, and the radius of the globe be considered as unity, we shall have the radius of the projection of that parallel in known terms, or

$$R = \frac{\cos. 47^\circ 30'}{\sin 55^\circ}.$$

2. The *orthographic projection* suppose the eye of the spectator at an infinite distance from the plane of the projection, and as this plane passes through the centre of the globe, and is perpendicular to all the visual rays, they, according to the supposed situation of the eye, are parallel to each other. The surface of a hemisphere is thus reduced to that of a great circle of the sphere, or only half its hemispherical area; and consequently all parts of that surface are contracted, while equal parts of the spherical surface are not reduced to equal spaces on the map. Indeed, while the parts near the central ray experience but a small contraction, this, on approaching the extremities, becomes rapidly increased; so that this projection, though it is occasionally used for astronomical purposes, is almost exploded in the construction of geogra-

phical maps. Fig. 4, plate I., will exhibit this: the arc ab is represented by the line ab' : bc by $b'c'$, and so on in succession, until, at A , iA diminishes into nothing.

3. The *stereographic projection* supposes the eye to be situated somewhere upon the surface of the sphere to be represented, and looking towards the opposite concave surface. That is, if we imagine there is before us a glass sphere, hung, like the terrestrial globe, in the position of a right sphere; that this glass sphere has cut upon its circumference all the lines and circles of the globe, and that these lines and circles are opaque; that within this glass sphere there is a glass plane, coinciding with the points Aries and Libra, and, by consequence, with the wooden horizon of the frame in which the sphere is supposed to be hung; then this glass plane meeting the inner surface, or circumference, of the sphere, would represent the plane of a great circle of the sphere passing through Aries, the north pole, Libra, and the south pole. Let us imagine, also, that there is a perpendicular drawn from the centre of this glass plane or circle, to meet the surface of the sphere precisely where the meridian of 90° is intersected by the equator, reckoning the degrees to commence at the first point of Aries. Suppose then that the eye is placed in this point of the surface, that is, exactly at the extremity of the aforesaid perpendicular, and that we are looking towards the opposite hemisphere, on which we should see all the opaque meridians and parallels, and that straight lines were drawn from those meridians and parallels respectively to the eye, those straight lines would necessarily pass through the glass plane within the sphere, and on this glass plane would be drawn the true representation of all the lines upon the surface of the concave hemisphere. This then would be the stereographic projection of the sphere: and, when we look at a skeleton planisphere, we have before us this identical picture.

The *globular projection* is the most useful and important modification of the stereographic, originally suggested by La Hire. We adopt Dr. Myers' able description of it. Instead of conceiving the eye to be placed at the surface of the sphere, this supposes the radius of the globe, perpendicular to the plane of projection, to be produced, and the point of view to be in this line, and at a distance from the surface of the sphere equal to the sine of 45° . By this means the radius of the plane of projection is bisected by the line which joins this point and the division of the arc answering to 45° . If CE , plate II. MAPPING, fig. 1, be produced to P , till EP be equal the sine of 45° , and the quadrantal arc AD be bisected in F , and PF be joined, then AC will also be bisected in G ; and, by drawing lines from P to every 10° of the quadrant, all the other parts of the line AC will also be nearly equal to each other. But, as the sine of 45° is equal to $\frac{1}{2}r\sqrt{2}$, where r is the radius of the circle, its value is always an irrational quantity, and therefore the line EP , which is to be equal to this quantity, cannot be set off with accuracy. This, however, is no real inconvenience in practice, for $\frac{1}{2}r\sqrt{2} =$

$\cdot 7071r$; and, consequently, if EP be made equal $\cdot 7r$, or $\cdot 71r$, it will not introduce any sensible error into the construction. Another easy method of finding the point P is to construct an equilateral triangle ABP , on the diameter AB , which will also give the point P with sufficient accuracy for any practical purpose; for in that case $CP = \frac{1}{2}AB\sqrt{3} = r\sqrt{3} = 1\cdot 732r$.—Hence $CP = CE = EP = 1\cdot 732r - r = \cdot 732r$; which only differs from the sine of 45° by $\cdot 0249r$, a quantity which is too small to introduce any material error into the construction.

M. Parent observed that, though the radius of the plane of projection was bisected by the line PE , it still required to be ascertained where the point P must be placed that the inequalities between the divisions of the diameter AB might be the least possible. To answer this condition, he found $EP = \cdot 595r$, for which six-tenths of the radius may be taken in any practical case. The same geometer also found that, when it is required that the zones of the hemispherical map should occupy spaces respectively proportional to those they have on the sphere which they represent, the point of view P must be removed to $1\cdot 105r$ beyond E , that is, EP must be made equal to $1\cdot 105r$, or very nearly eleven-tenths of the radius. Hence it may be observed, that while these modifications of the stereographic projection sacrifice the advantage of the meridians and parallels of latitude, cutting each other at right angles, and change the circles into ellipses, they do not accurately preserve the equality of the space, or the similarity of the configurations.

In the globular projection, however, or in either of M. Parent's modifications of it, these inequalities are much reduced, for the divisions on the equator and the central meridian are equal to each other; and therefore equal spaces on the sphere are represented by nearly equal spaces on the map; a circumstance which renders this projection the most proper for geographical purposes. The meridians and parallels of latitude, being ellipses of such small eccentricity, they are generally made circular, which facilitates the construction, without distorting the map. Since the late invention of the excellent instrument for drawing ellipses, however, this approximation has been rendered unnecessary, by the facility with which these curves of any size and eccentricity may now be drawn.

The stereographic projection has been considered as embracing three distinct cases, in reference to the plane of the primitive circle. 1. That upon the plane of the equator, which is called the polar projection because the eye is supposed to be in one of the poles. 2. That upon the plane of the meridian, (generally that of the island of Ferro), which divides the globe into two hemispheres, the one containing the old and the other the new continent. This is usually called the meridional projection. 3. That upon the plane of the rational horizon of any place whatever, which supposes the eye to be situated at that place. This is the horizontal projection. The method of constructing each

shall therefore be explained, after the elegant constructions in Puissant's *Topographie* as abridged by Myers.

Construction of the polar projection.—In this projection the eye is supposed to be in one of the poles, and consequently in the point where all the meridians intersect each other. As the plane of the equator is the plane of projection, the meridians are necessarily represented by radii of that circle; and, as the parallels of latitude are all parallel to the equator, they are represented as concentric circles, the common centre of which is that of the primitive circle.

To project the meridians.—Let AP (fig. 2) represent the radius of the terrestrial sphere, and ACBD one of the great circles of that sphere; then the centre P being taken for the projection of the optic axis, or the point of view which is placed at the pole, the circumference ACBD will be the projection of the equator. Now, as the planes of the meridians all intersect each other in the axis of the earth, the projection of the first meridian may necessarily be represented by any diameter of the primitive circle. Let this diameter be AB; and divide the circumference ACBD into the required number of equal parts, in the points a, b, c , &c., and a', b', c' , &c. If the meridians and parallels are to be drawn to every 10° , the number of these parts will, of course, be nine in each quadrant. Then, through the centre P, and each pair of these corresponding points, draw the diameters aa', bb', cc' , &c., and they will be the meridians required. Hence, the difference of longitude of each pair of consecutive meridians will be measured by the arcs Aa, ab, bc ; or $Ba', a'b', b'c'$, &c.

To project the parallels.—To describe the parallels, corresponding to the above division, draw the diameter CD perpendicular to AB, and join the points D a, Db, Dc , &c.; then these lines will cut the diameter AB in the points n, n', n'' , &c. With P as a centre, and P n, Pn', Pn'' , &c., as radii, describe circles, and they will be the parallels required. If C p be set off equal to $23^\circ 30'$ and D p be joined, cutting AP in p' , and with P as a centre, and P p' as a radius, if a circle be described, it will be the projection of one of the polar circles. In this method D is the point of view, and the points n, n', n'' , &c., are the stereographic projections of the corresponding points a, b, c , &c., belonging to the required parallels; for if the circle ACBD be conceived to turn about the diameter AB, until it make a right angle with the plane of the figure, the radius PD will be perpendicular to that plane, the point C will be the pole opposite the point of view D, and the arcs A a, Ab, Ac , &c., will be the respective latitudes of the parallels a, b, c , &c. Consequently, the traces n, n', n'' , &c., of the visual rays D n, Dn', Dn'' , &c., will represent the points a, b, c , &c., upon the perspective plane ACBD. Having thus constructed the hemisphere, it only remains to mark the positions of places according to their latitude and longitude, to delineate the contours of lakes and seas, and to trace the courses of rivers, according to the same data. In this projection the meridians and parallels of latitude cut each other in the same manner as on the surface of the sphere.

But it should be remarked that, though the spaces contained between two meridians and two consecutive parallels, near the centre of the map, are represented on the plane of projection without much defect, those that are situated near the margin are greatly enlarged, in consequence of the increased obliquity of the visual rays as they recede from the optic axis.

Construction of the meridional projection.—When the primitive circle is a meridian, the point of view is upon the circumference of the equator, the projection of which is a right line, perpendicular to the axis of the earth, or to the central meridian of the map. This construction also embraces two distinct operations, the projection of the meridians, and that of the parallels of latitude.

To project the meridians.—Let AB (fig. 3) be the projection of the equator, PP' the axis of the earth, and C the centre of the map, or the projection of the point of view P, upon the plane of the meridian APBP', considered as the primitive circle. All the meridians have P' for their common intersection, and their projections being circles, the circumferences of these circles will necessarily pass through the points P and P'. When the distance between each pair of the meridians is to be 10° , divide the arc BP' into nine equal parts in the points a, b, c , &c., and join Pa, Pb, Pc, &c.; then the points 1, 2, 3, &c., where these lines intersect CB, will be the points in that line through which the meridians must respectively pass. Consequently, the method by which they are to be drawn is reduced to that simple problem in the elements of geometry, by which a circle is described through three given points. Now, if P'1 be joined, the angle A1P', will evidently be equal to the angle A1P, and consequently the line AB, which bisects the angle P1P', will pass through the centre of the circle described through the three points. The same is also true with respect to the angles P2P', P3P', &c., and therefore the centres of all the meridians will be in the right line AB, or in that line produced. If the lines P1, P2, P3, &c., be bisected, and perpendiculars drawn to these lines, at the points of bisection, it is evident, from the principles of geometry, that these perpendiculars will pass through the centres of the circles described through these points; and, since the line AB also passes through the centres of the same circles, their intersections will necessarily determine these respective centres. Now, since a line drawn parallel to the base of any triangle cuts the other two sides proportionally, bisect PC in p , and draw pq parallel to CB, which will evidently bisect all the lines P1, P2, P3, &c., in the points q, r, s , &c. From these points draw the perpendiculars qo, ro, so , &c., intersecting AB in the points o, o', o'' , &c., then will these points be the centres required.—Hence, with the points o, o', o'' , &c., as centres, and the lines $o1, o'2, o''3$, &c., as radii, describe the circles P1P', P2P', P3P', &c., which will be the meridians of the required hemisphere. From the symmetry of the figure, it is obvious that, if the distances Co, Co', Co'', &c., be set off on the line CB, from C towards B, and circular arcs be described from P to P', on the op-

posite side of PP' , they will be the meridians corresponding to $P1P'$, $P2P'$, $P3P'$, &c.

To project the parallels.—Divide the quadrants PA and PB , so as to make the parts Pa' , $a'b'$, $b'c'$, &c., respectively equal to the parts Ba , ab , bc , &c.; then, since the parallel circles ought to pass through the corresponding points $a'a'$, $b'b'$, it is evident that their centres will be upon the axis PP' , produced. Join Ca' , Cb' , Cc' , &c., and draw the lines $a'n$, $b'n'$, $c'n'$, &c., perpendicular to Ca' , Cb' , Cc' , &c., and then it may easily be proved, by the elements of geometry, that these lines $a'n$, $b'n'$, $c'n'$, &c., are the radii of the respective parallels $a'a'$, $b'b'$, $c'c'$, &c. Hence with n , n' , n' , &c., as centres, and the lines na' , $n'b'$, $n'c'$, as radii, describe the circles $a'a'$, $b'b'$, $c'c'$, &c., which will be the parallels required. If CP be produced, and the distances Pn , Pn' , Pn' , &c., be set off from P' , they will give the centres of the corresponding parallels to be described about the pole P' .

The following elegant construction is given, by M. Puissant, in his *Topography*. To project the meridians.—Let AB (fig. 4) be the projection of the equator, PP' the axis of the earth, and C the centre of the map, or the projection of the point of view upon the plane of the meridian $APBP'$, considered as the primitive circle. Then the centres of all the meridians will be in the line AB as before.—Divide the arc AP into any number of equal parts Aa , ab , bc , &c.; draw the diameter aa' , and through its extremities draw Pa and $P'a'$, which will cut AB , and AB produced, respectively, in the points n and m . These points will be the respective projections of the extremities of that diameter of the meridian passing through a point, of which the longitude, with respect to the first meridian $PA P'$, is measured by the arc Aa . If, therefore, from the middle of mn , as a centre, and with a radius equal to half mn , the arc $Pn P'$ be described, it will be the projection of the required meridian. Employing the same construction for the points b' , c' , &c., we evidently have the projections of the other meridians; and, in consequence of the symmetry of the figure, the same method which answers for the semicircle $PA P'$, will also serve for PBP' . The meridian which has its plane perpendicular to the plane of projection, APB , will evidently be represented by the axis PP' . If any difficulty be experienced in comprehending this construction, it will only be necessary to conceive, as in the preceding case, the circle $APBP'$ to turn about AB , so as to take a position perpendicular to the plane of the figure; then the radius CP will be perpendicular to that plane, P' representing the point of view, and the circle $APBP'$ the equator, divided into any given number of equal parts. When the meridians are to be drawn through every 10° , the number of these parts will be 36. Now, if through the points of division a , b , c , &c., we suppose the visual rays $P'a$, $P'b$, $P'c$, &c., to be drawn, their traces n , n' , n' , &c., upon the plane of projection, will represent the corresponding points of the meridians.

To project the parallels.—These circular curves ought to pass through the corresponding points of division ha' , gg' , ff' , &c., and their centres will

necessarily be situated on the prolongation of the axis PP' , and may be determined as follows. Draw the right lines Bh and Bh' , the first cutting PP in r' , and the other in r , and rr' will be the diameter of the parallel. Since the three points h , r' , h' , are upon the parallel $h'h'$, all is given that is necessary for describing it. Therefore, if with o , the middle of rr' , as a centre, and a radius equal to oh' , the arc $hr'h'$ be described, it will be the parallel answering to the latitude h ; and consequently if each of the divisions be 10° , it will be that to latitude 80° . The same construction will give all the other parallels gg' , ff' , &c.

Construction of the horizontal projection.—In this construction the rational horizon is the plane of projection; the point of view is the pole of that horizon, and the meridian which passes through the place for which the map is to be constructed is a right line, and is called the principal meridian.

To project the meridians.—Let $ADBE$ (fig. 5) be the horizon of the place; its centre C will be the projection of the point of view, or of the pole of that horizon. Let AB , also, be the diameter which represents the principal meridian, or that which passes through the middle of the map. If the angle PCA be equal to the height of the pole, and DE perpendicular to AB , the right line PE cuts AB in a point p , which will be the projection of the elevated pole of the globe P . If EP' be drawn and produced to meet the prolongation of AB in p' , this point will be the projection of the depressed pole P' . The projection of the meridians, all which intersect each other in the points p and p' , have their centres upon the right line SS' , perpendicular to the middle of pp' , at F . This line SS' is called the line of the centres of the meridians; and it is remarkable that CF is equal to AT , which is the tangent of the arc that measures the height of the pole. To render the principles of this construction more evident, suppose, as in the preceding cases, the circle $ADBE$ to be turned about AB , till it becomes perpendicular to its primitive position. In that state, PP' will represent the axis of the earth, the radius CE will be perpendicular to the plane of the figure, the point F , considered as the point of view, will be projected into C ; and the visual rays EP and EP' will evidently meet the plane of projection in the points p and p' . To determine the projection of the meridians, a third point is requisite, and is thus found. The meridian that has its plane perpendicular to the principal meridian AB , cuts the horizon in the right line DE , which is perpendicular to AB . Therefore, if from the point F as a centre, and with the radius FD , the arc DpE be described, it will be the projection of the meridian passing through 90° of longitude, reckoned from the principal meridian AB . The projection of the equator does not present greater difficulty; for, if the diameter QQ' be drawn perpendicular to PP' , it will be that of the equator and its projection upon the map will be qq' . Consequently, if from the middle of the line qq' , as a centre, and with a radius equal to $\frac{1}{2} qq'$, or equal to the cosecant of the latitude from the centre of the map, the arc DqE be described,

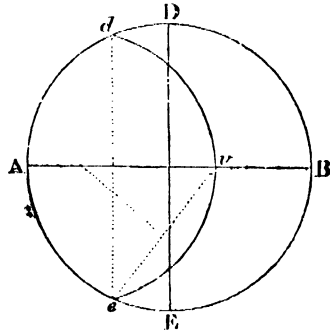
this arc will be the projection of half the equator.

One of the properties of the stereographic projection being that the angle formed by the projections of two meridians, is equal to the angle formed by these meridians on the surface of the sphere, or rather by the intersection of their planes in the axis of that sphere, from the point p , as a centre, and with any arbitrary radius, as pF , for example, describe a circle, divide it into as many equal parts as there are meridians to be drawn, commencing at A, B ; if these are to be 10° from each other, the number will be 36. Through all the points of division, draw radii, prolonging them till they meet the line of centres SS' , in the points $x, x', x'', \&c.$, which will be the centres of the projections of the meridians. It is evident, however, from the symmetry of the figure, that it will be sufficient to draw the radii in the first quadrant of the circle. But this process becomes inconvenient in practice, on account of the great increase of the radius, when the divisions approach the extremities of the quadrants. In this case, the points where the meridians meet the plane of projection may be determined in the following manner. From any point in the line AB , or its prolongation, as F , for instance, let fall a perpendicular Fk , upon the line PP' , and set off Fk from F to k' ; then with this last point, as a centre, and a radius equal to $k'F$, or with any other radius taken at pleasure, but rather large, describe a circle, and divide it into the same number of equal parts as before. Next, draw the secants $k'n, k'n', k'n'', \&c.$, through all the points of this division, and their extremities, $n, n', n'', \&c.$, in the line SS' are upon the projections of the planes of the meridians. Therefore, draw the right lines $nCu, n'Cu', n''Cu'', \&c.$, and the diameters $um, u'm', u'm'', \&c.$, will be the projections required. We shall consequently have three points $u, p, m, \&c.$, in each meridian of the map, from which the curves themselves are easily drawn, by the method already explained.

To project the parallels.—The parallels of latitude in this projection are easily described; for, their planes being perpendicular to the principal meridian AB , the diameters of their projections are obtained in the same manner as that of the equator itself. Hence, after having divided the circumference into the given number of equal parts, draw right lines from the point of view E to every two corresponding points of the division. In the present instance $E1$, and $E1'$. The interval $v'v$, intercepted between these right lines, taken upon the meridian AB , will be the diameter of a parallel. Here it evidently belongs to the parallel drawn through the first division from the pole, or 80° , since the arc AP measures the height of the pole. But, for the parallels which are very distant from the elevated pole P , this construction cannot be practised, because the point v is then so distant from the centre of the map. To obviate this inconvenience, the intersections of the planes of the parallels with the plane of projection $ADBE$ may be traced. These are necessarily parallel to DE , and their distance from it is

$$x = \frac{\sin. \text{latitude of the parallel}}{\cos. \text{altitude of the pole.}}$$

When the latitude is south, the pole P being the north pole, the value of x becomes negative; then, instead of setting off the value on CA , it must be set off on CB . It follows from this that, if at the distance x from the line DE of the diagram the parallel de be drawn, the points d



and c , which are common to that parallel, and the circumference $ADB E$, belong to the parallel required; but this circle also passes through a point, as v , determined by the preceding method. We have, therefore, the three points necessary for describing the arc.

The inequality of the spaces as given by the stereographic projection, observes Dr. Myers, does not admit the employment of a rectilinear scale for measuring the distance from one place to another, which is always the arc of a great circle, but, by means of the graduation itself, the distance between the centre of the map and any other place may always be determined. Thus, in a horizontal projection for London, the distance between that capital and any other place in the hemisphere of which it is the centre may be readily found, by means of this graduation. This property results from the circumstance that all the great circles passing through the centre of the map cut each other in the optic axis, and have right lines drawn through this centre for their projections. Hence they admit of a similar graduation to that of the equator, in the hemispheres constructed on the plane of the meridian.

Construction of the globular projection.—According to the explanation of this projection, and its advantages, the distance EP , plate II. fig. 1, being equal to Fg , which is the sine of 45° , let the arc BD be divided into any number of equal parts (10° each, for example) in the points $a, b, c, \&c.$, and join $Pa, Pb, Pc, \&c.$ Then these lines will cut the diameter AB in the points $1, 2, 3, \&c.$, and make the several divisions nearly equal to each other. If, therefore, circles be described through the points $D1E, D2E, D3E, \&c.$, by the methods already explained, they will constitute the meridians required. For, though these meridians are not actually circles, the eccentricity of the ellipses is so small that it is usually neglected; but the elliptic meridians may be easily drawn when the required accuracy renders it necessary. The curvature of the circular meridians near the middle of the map becomes so small, and their radii, in consequence, so great, that recourse must frequently be had to methods of drawing them without compasses. One of

the most convenient instruments for this purpose is two rulers, AC and BC (fig. 25), united together by a joint at C, so as to permit them to form any given angle with each other. When this simple machine is to be used, a steel pen, or other suitable instrument for drawing lines, must be fixed in the centre of motion C; and, the map being stretched upon a smooth surface, this centre is made to coincide with the point *n* (fig. 22); the edges of the rulers AB and BC resting against two pins of metal fixed at the poles P and P'. Then, without varying the angle ACB, the point C is to be moved from *n* to P and P' respectively, while the edges of the rulers are still pressed against the pins at these two points, and it will describe the arc PnP' required. With the new instrument already mentioned, the elliptic meridians may be drawn with great facility. In order to describe the parallels of latitude, let AB (fig. 1) be produced to P' till BP' be equal to Fg. Divide the quadrant AE like BD, into any number of equal parts in the points *a*, *b*, *c*, &c. Then if P'a, P'b, P'c, &c., be joined, these lines will cut CF in the points 1', 2', 3', &c., through which the parallels of latitude are to be drawn as before. As no construction can represent a spherical surface with accuracy on a plane, that which preserves the greatest equality of ratio between the spaces themselves and their representatives should be preferred for geographical purposes. On this account, the suggestions of M. Parent, for dividing the diameters AB and DE (fig. 1) of the plane of projection, as well as the circumscribing circle AEBD, into equal parts, deserve particular attention in constructing maps of all extensive regions.

Mercator's projection is chiefly confined to navigation charts. In this projection the meridians, parallels, and rhumbs, are all straight lines; but, instead of the degrees of longitude being every where equal to those of latitude, as is the case in plain charts, the degrees of latitude are increased as we approach towards either pole, being made to those of longitude in the proportion of radius to the sine of the distance from the pole, or cosine of latitude; or, what is the same thing, in the secant of the latitude to radius. Hence, all the parallel circles are equal and parallel straight lines; and all the meridians are parallel lines also; but these increase indefinitely towards the poles. This proportional increase of the degrees of the meridian makes the length of an arc of the meridian, beginning at the equator, proportional to the sum of all the secants of the latitude; or the increased meridian bears the same proportion to its true arc, as the sum of all the secants of the latitude to as many times the radius. The increased meridian is also analogous to a scale of the logarithmic tangents, though this is not at first very evident.

The meridian line in the chart is, therefore, a scale of logarithmic tangents of half co-latitudes. The differences of longitude on any rhumb are the logarithms of the same tangents, but of a different species; those species being to each other as the tangents of the angles made with the meridian. Hence, any scale of logarithmic

tangents is a table of the differences of longitude to several latitudes upon some one determinate rhumb; and, therefore, as the tangent of the angle of such a rhumb : tangent of any other rhumb :: the difference of the logarithms of any two tangents : difference of longitude on the proposed rhumb, intercepted between the two latitudes, of whose half complements the logarithmic tangents were taken.

This projection, it is clear, cannot be used for ascertaining the distances of countries, or their true figure, for the regions distant from the equatorial line are enlarged prodigiously; in the solution of geographical questions relative to a ship's course, this, however, is not material. The meridional increase is now generally calculated by tables of increasing latitude. See LATITUDE.

Roads on maps are indicated by two parallel lines, either plain or dotted, or frequently by only one plain line. Rivers by undulating lines; and both banks shown when the breadth is sufficient to be measured from the scale. This is often the case near their mouths, where the estuary becomes greatly enlarged. Canals are distinguished from natural rivers by representing them by lines devoid of inflections. Coasts are variously expressed; as by a single line, or a line accompanied by shading towards the water; but, in nautical charts, the shading is towards the land. The boundaries of kingdoms, states, and provinces, are usually marked by dotted lines; and, to make these divisions still more conspicuous, different colors are frequently employed.

'In estimating the extent of a country or kingdom,' observes Dr. Myers, 'the two following cases must be distinguished from each other. When the projection represents equal regions on the surface of the earth by equal spaces on the map, their areas are calculated, like those of plane figures, by inscribing rectangles or triangles in the spaces included within their boundaries; or, by reducing them, by approximation to the case of regular figures. In the other instance, when equal regions on the globe are not represented by equal spaces on the map, the superficies must be estimated by means of the quadrilaterals formed by the meridians and parallels.'

Maps also exhibit the face of the country, by showing the form and variations of the terrestrial surface, as the principal chains, or groups, of mountains, the insulated summits, the lakes, and other appearances. Various methods of denoting the elevations have been devised. Buache adopted the method of sections or profiles, drawn according to given lines, to represent the inequalities of the terrestrial surface. Dussain Triel devised the method of tracing lines on the map through all the points of the same altitude above the level of the sea, and which would evidently become coasts, could the sea by any means be elevated to the altitudes at which these lines are traced, in the same manner as the lines, which join the equal soundings in nautical charts, would become banks if the ocean were to sink to that level. But into the minute delineation of these, and other methods which have been devised for this purpose, we cannot enter.

MAPALLA, a convenient bay on the coast of the Pacific, in the province of Ficaragua, and not far from the lake of that name.

MAPLE, *n. s.* Sax. *mapel* ; Goth. *mappel*. A tree of the acer genus. See **ACER**.

MAPLETOFT (Dr. John), descended from a good family in Huntingdonshire, was born in 1631. He studied physic; was educated at Trinity College, Cambridge; and in 1675 was chosen professor of medicine at Gresham College. He translated Dr. Sydenham's *Observationes Medicæ circa Morborum Acutorum Historiam et Curationem* into Latin, and Sydenham dedicated them to him. He married in 1679, and soon after studied divinity, took orders, obtained the vicarage of St. Lawrence Jewry, with the lectureship of St. Christopher's in London: and, having been a considerable benefactor to Zion College, was in 1707 elected president. He continued to preach till he was above eighty years of age; and, in 1710, published *The Principles and Duties of the Christian Religion*, &c., 8vo.; and sent a copy to every house in his parish. Besides other pieces on moral and theological subjects, there are, in the Appendix to Ward's *Lives*, three of his Latin lectures on the origin and history of medicine.

MAPPA, in the public games of the Roman circus, was a napkin hung out at the prætor's or other great magistrate's seat, as a signal for the race or other diversions to begin. The mappa was received by the mapparius, from the consul, prætor, or other great officer. Notice was anciently given by sound of trumpet; but Nero is said to have introduced the mappa, by throwing his napkin out of the window to satisfy the people, who grew noisy at the delay of the sports, while he was at dinner.

MAPPARIUS, in Roman antiquity, the officer who gave the signal to the gladiators to begin fighting, by throwing a handkerchief that he had received from the emperor or other magistrate.

MAR, *v. a.* Sax. *mennan*, *amýnnan*; Belg. *murren*; Span. *marrar*; Gr. *αμαρτω*, seu *αμαρτω*, Minshew. To spoil; hurt; injure; damage.

An envious World will interpose its frown,
To *mar* delights superior to its own;
And many a pang, experienced still within,
Reminds them of their hated inmate, Sin.

Courper.

MARA, Gertrude Elizabeth, daughter of a Mr. Schmahling (born, according to some, in 1750, in Cassel; others say in 1743, at Fischbach, in the territory of Eisenach; others say in 1749), was one of the greatest singers of our time. Her father, city musician in Cassel, instructed her in music. When she was seven years old, she played the violin admirably. In her tenth year, she performed before the queen, in London, whither she had accompanied her father, and where she remained two or three years. In her fourteenth year, she appeared as a singer at court. In 1766, she went with her father to Leipsic, and received an appointment there. Frederic the Great, though much prejudiced against German performers, was induced to invite her, in 1770, to Potsdam, his residence,

showed great admiration of her powers, and gave her an appointment immediately, with 3000 Prussian dollars salary (about 2000 dollars). In 1774, she married a violoncello player named Mara, a man of careless habits, who involved her in many difficulties, and she was dismissed by the king in 1780. In 1712, she went to Vienna and Paris, where she received the title of a first concert singer of the queen. In 1784, she went to London, where she was received with the greatest enthusiasm. For thirteen evenings' performance at the Pantheon concert, she received a thousand guineas. In 1785 and 1786, she was engaged for the London opera, and appeared at one of the annual concerts in honor of Handel, as first singer, and, in the winter of 1785 and 1786, was established at the London opera. But her obstinacy offended as much as her powers delighted. In 1802, she went to Paris, and in 1803, to Germany. At a later period she went to Petersburg, and, in 1808, she was at Moscow, where she is said to have married her companion Florio, after the death of Mara, from whom she had been separated long before. By the burning of Moscow, she lost her house and fortune; she therefore went to Reval, and gave lessons in music. In 1819, she went through Berlin to England, and, in 1821, returned to Esthonia. The latest accounts of her were, that she celebrated her birth-day at Reval, February 23d, 1831, having completed her eighty-third year, on which occasion Goethe offered her a poetical tribute. The fame of this singer is founded, not only on the strength and fulness of her tone, and the extraordinary compass of her voice, which extends from *c* to the triple-marked *f* (nearly three octaves), but also on the admirable ease, quickness, and spirit, with which she sung the most difficult passages, and her simple and enchanting expression in the *adagio*. Her singing of Handel's air, for instance—"I know that my Redeemer liveth"—in the Messiah, was particularly celebrated.

MARACAIBO, or **MARACAYNO**, a province of Colombia, South America, which surrounds the lake of that name. It is bounded on the west by Santa Marta in New Grenada; on the east by Coro and Venezuela; on the north by Santa Marta and the Gulf of Maracaibo, and on the south by Merida and Santa Marta. Owing to the great extent of the lake, this province extends but a short distance inland, to the east and west: its length is about one hundred leagues.

The soil is unfruitful on the banks of the lake. The east shore is dry and unhealthy; and, on the west, the land does not begin to be fertile for more than twenty-five leagues south of the city. South of the lake, the country may vie with the richest lands of this continent. The climate is in general hot and unhealthy, excepting in the southern parts, which border on the snowy mountains of Merida.

Near the borders of the lake, west, notwithstanding the heat of the climate, and the insalubrity of the air, several whites have fixed their habitations to cultivate cacao; they are much scattered, but have a chapel placed in the centre

of their settlement, to which they all occasionally resort.

The lake is navigable for vessels of any burden; but this advantage is sometimes rendered useless by a dangerous sand-bank across the entrance, which is narrow, and on which vessels drawing twelve feet water will occasionally touch ground. Several small rivers empty themselves into this lake; but the country is uninhabited excepting by Indians; and, immediately on the shores, nothing is known with accuracy concerning them. The savage Goahiros from La Hacha prevent all access on the western side, and keep the settlers in alarm. It was from the Indian towns, built on posts of iron-wood on the lake of Maracaibo, that the Spaniards gave the country the name of Venezuela, or Little Venice. Four of these are yet standing, the iron-wood on which they are founded becoming like a mass of stone from the petrifying quality of the water. These villages are situated on the east part of the lake, at unequal distances from each other, and have a church, which is also built in the water on piles, and to which the inhabitants of the villages resort. The population of this province is estimated at 174,000 souls. The chief towns, beside the capital, are Truxillo, Gibraltar, La Barbacos, and San Pedro.

MARACAIBO, a city of Colombia, and the chief town of the above province, is situated in N. lat. $10^{\circ} 30'$, and W. long. $71^{\circ} 46'$, on the western side of the strait which leads into the lake, at about six leagues from the sea. The soil of the neighbourhood is sandy, and the climate so much the more hot, as the sea breezes here are faint, and far from regular. The soil is not watered by any kind of running stream. From the month of March to October the heats are excessive; but those of August and July are insupportable. The air breathed at this period appears as if it had issued from a furnace. The trade-winds blow in general from the commencement of March till June or July. August and September are calm months, unless when they are interrupted by the south wind, which in the country they denominate, on account of its insalubrity, *the destroyer*. They remark that, when the breezes are moderate, the year is rainy; and, when violent, that they are succeeded by droughts. Maracaibo is very subject to tempests. The thunder breaks with frightful explosion, and the lightning sometimes strikes and consumes houses, ships, and every thing which it meets. They do not, however, experience earthquakes, nor those furious hurricanes which often seem to threaten the very existence of the Antilles. The deluges of rain, which some of these tempests produce, are so great, that they form a torrent, which traverses the city with a rapidity which is inconceivable, bearing trees along with it, and causing, in proportion to its rise, desolation to houses, and every thing in its course.

The principal part of this town is on the shore of a small gulf, a league in length, which extends, on the south, towards the broad part of the lake: the other part is built on the neck to the north, where the lake is only three leagues in width. The place where the town begins is named Maracaibo Point; that where the gulf commences,

Arieta Point; and opposite to that is Point Santa Lucia.

Many of the houses, built of lime and sand, are in good taste; but most of the inhabitants adhere obstinately to the opinion, that tiles render the houses destructive to the persons who inhabit them, and continue in the custom of covering the handsomest houses with a kind of reed, called by the Spaniards *enea*. This mixture of houses, covered with tiles and reeds, gives to the city the air of a village, and offers to the flames food that keeps it in constant danger. Maracaibo contains one parish church, a chapel, and a convent of Franciscans.

As there are neither fountains, wells, nor river, the people drink no other water than that of the lake, which in taste is not agreeable, but in quality by no means bad, except during the breezes of the months of March and April. These drive up the water of the sea against the current, and render that of the lake excessively brackish. The poor can, in this case, quench their thirst only with water which they procure by excavations in the earth; but this is very far from wholesome. The higher ranks have cisterns or jars in their houses to collect the rain water. It was calculated, in 1807, that Maracaibo contained 25,000 inhabitants. Certain noble families here boast of having descended from the first conquerors of the province; but there are very few of these primitive houses that now enjoy even an easy mediocrity. Almost all experience so much misery, that the idea of their illustrious origin is the most grateful support with which they are fed; for a Spaniard of that kind, once reduced to indigence, is so for life. The shame of labor, and love of indolence, makes him brave like a hero all the horrors of want. The whites, not noble, are Europeans or Creoles. This is the class that lives with the greatest comfort, because it is the only one which labors, and applies itself to agriculture, navigation, commerce, the fisheries, &c. The number of negroes at Maracaibo does not exceed 5000. They exercise all kinds of trades,—are joiners, tailors, shoemakers, carpenters, masons, and smiths. The natives of the town have, in the Spanish colonies, the reputation of being very witty. The Jesuits had a college here, which produced some distinguished scholars, and it became the literary town of America; but, with that order of clergy, their establishments fell.

‘In allowing that the inhabitants of Maracaibo have activity, courage, and genius,’ says Depons, ‘we have nothing more to say in their favor. They are reproached with having very little regard to their word, and with thinking themselves not bound by their signature, until after they have in vain endeavoured to release themselves from it by law. Their reputation in this respect is so well established, that all strangers, whom business draws to Maracaibo, say it is much better to form connexions of interest with the women than with the men, because they alone have there that good faith and firmness which, in every other part, is the peculiar heritage of the men. Since the course of description has led me,’ he adds, ‘to speak of the women of Maracaibo, I ought not to let it be unknown that they

are in their youth paragons of modesty; and, in marriage, faithful wives, and excellent mothers of families. Affection for their husbands, the cares of their households, and the education of their children, are the objects which divide all their moments, and occupy all their solicitude. They know not, however, before marriage, any other amusement than music. Their favorite instrument is the harp. There are few houses in which the harmonious sound of this instrument is not heard every evening, and every day of festival.

Maracaibo, we should add, is thought, on the whole, a healthy residence. There are no epidemic complaints; and a man once seasoned to the climate preserves his health as well and better than in many other places where the heats are less intense, and the means of refreshing himself more multiplied. In July and August the most usual preventive for the ill effects of the climate is constant bathing in the lake.

The citizens of Maracaibo contract from their infancy a taste for navigation, and repair in crowds to Porto Cavello, Guayra, and the other ports. They perform, with equal ability, coasting or longer voyages. In those intervals when war suspends their commercial enterprises they embark on board privateers. The neighbourhood of the lake, in the waters of which they exercise themselves in their early years, renders them as excellent swimmers as expert divers. Those who resist the attractions of the sea, raise herds of cattle, or take care of those of their fathers. Nothing better evinces their aptitude to this occupation than the immense number of beasts with which the savannahs of Maracaibo are covered. The principal ones are those of Jobo, Ancon, Palmares, and Cannades. We ought to mention, that there is more merit in raising cattle in the savannahs of Maracaibo than in any other place in these provinces, because, having neither rivers nor ponds that never dry up, drought occasions the death of many, in spite of the precautions they take, in cases of this sort, to drive them towards those parts where they can with convenience water them.

At this port a bar of sand, which is but ten or twelve feet under water, entirely excludes large vessels, and with difficulty admits small ones. Neither should any attempt to enter without a pilot. As soon as she clears the bar, a vessel has plenty of water, and good harbour. Three forts protect the harbour. The best schooners which sail on the Spanish Main are built in this city.

MARACANDA, in ancient geography, the capital of Sogdiana; now thought to be Samarcand, a city of Usbec Tartary, the royal residence of Tamerlane. See SAMARCAND.

MARACAY, or MORACAO, a town of Colombia, in the province of Venezuela, and situated on the east side of the lake Valencia, in the valley of Aragoa. Its sandy soil renders it, like Maracaibo, healthy, but hot. Three-fourths of the houses are built of stone, and with considerable elegance as well as solidity: but the streets are not paved. There is but one parish church. The inhabitants are active and industrious, possessing numerous plantations of cotton, indigo, coffee, corn, &c. Population 8400.

MARAGA, a well-built city of Persia, in Aderbajan, pleasantly situated in a low valley, opening to the large lake of Urumea, from which it is distant about twelve miles. It has a spacious bazaar, a glass manufactory, and a handsome public bath; and is encompassed with a high wall. Inhabitants 15,000, of the Turkish tribe of Mukudim. The gardens and plantations are watered by canals, communicating with a small river, over which there are two bridges. The place is distinguished by the tomb of Ilalakon, or Hulagon, a prince of the dynasty of Zinghis Khan, who made this the place of his residence. He built an observatory on a mountain, close to the city, for the use of Naserul Deen, the most famous astronomer of his age, and the author of tables of latitude and longitude. Maraga has also several extensive excavations, dedicated to religious purposes. It is sixty-eight miles north of Tabreez.

MARALDI (James Philip), a learned mathematician and astronomer of the academy of sciences at Paris, born in the county of Nice, in 1665. His mother was Angela Catharine Cassini, the sister of the famous astronomer. His uncle Cassini sent him to France in 1687, where he acquired great reputation by his observations. He made a catalogue of the fixed stars, which is more exact than Bayer's; and gave a great number of interesting observations in the Memoirs of the Academy; particularly on bees and petrifactions. He also assisted his uncle in constructing the great meridian through France. He died in 1729.

MARANA (John Paul), an ingenious writer of the seventeenth century, of a distinguished family, born in Genoa, where he was educated, and made great progress in the sciences. Having been engaged in the conspiracy of Raphael della Terra, to deliver up Genoa to the duke of Savoy, he was in 1670, when twenty-eight years of age, imprisoned in the tower of that city. Being liberated, in 1674, he was ordered to write the history of that conspiracy; but, when finished, he was forbidden to publish it. When the republic of Genoa was at variance with the court of France, Marana, afraid of being imprisoned a second time, retired to Monaco, where he again wrote the history of the conspiracy in Italian; and, in 1682, went to Lyons to get it printed. From Lyons he went to Paris, where his merit soon acquired him powerful friends. Here he spent the rest of his life in the society of men of learning: and died in 1693. His history of the conspiracy contains many interesting anecdotes, nowhere else to be found. He also wrote several other works; the best known of which is the Turkish Spy, in 6 vols. 12mo., which was, in 1742, augmented to 7 vols. Of this ingenious work there is an excellent English translation.

MARANHAM, or MARANAN, a province of Brasil, comprehending the island of that name, and part of the adjacent continent. It is bounded on the east by Seara, north by the Brazilian Sea, west by Para, and south by the country inhabited by the Indians. There are annexed to it, besides Maranham, the islands of Sipotuba, Santa Ana, and Ygarapatoe. The climate, though the country is so nearly under the equinoctial

line, is pleasant and healthy, producing all kinds of grain and fruits, cotton, sugar, and rice : of maize there are two crops in the year; and the dye woods are excellent. The tree which produces the annatto is also common.

MARANHAM, THE ISLAND OF, in the great gulph of the same name, is twenty-six leagues in circuit, extremely fertile, and has 25,000 inhabitants. The city of St. Louis, founded by the French in 1612, is on the south side of the island, and contains 10,000 inhabitants. It is the seat of government of the three northern provinces, and the centre of their commerce with Europe : vessels of burden not venturing up to Para

MARANTA, Indian arrow root, a genus of the monogynia order, and monandria class of plants; natural order eighth, scitamineæ: cor. ringent and quinquefid, with two segments alternately patent. There are three species, viz.

M. arundinacea, comosa, and galanga, all herbaceous perennial exotics of the Indies, kept here in hot-houses for curiosity: they have thick, knotty, creeping roots, crowned with long, broad, arundinaceous leaves, ending in points, and upright stalks, half a yard high, terminated by bunches of monopetalous, ringent, five-parted flowers. They are propagated by parting the roots in spring, and planting them in pots of light rich earth, and then plunging them in the bark bed. The root of the galanga is used by the Indians to extract the virus communicated by their poisoned arrows; from whence it has its name of arrow root. The *arundinacea*, or starch plant, rises to two feet, has broad pointed leaves, small white flowers, and one seed. It is cultivated in gardens and in provision grounds in the West Indies; and the starch is obtained from it by the following process described by Dr. Wright: 'The roots, when a year old, are dug up, well washed in water, and then beaten in large deep wooden mortars to a pulp. This is thrown into a large tub of clean water. The whole is then well stirred, and the fibrous part wrung out by the hands, and thrown away. The milky liquor being passed through a hair sieve, or coarse cloth, is suffered to settle, and the clear water is drained off. At the bottom of the vessel is a white mass, which is again mixed with clear water and drained: lastly, the mass is dried on sheets in the sun, and is pure starch.' A decoction of the fresh roots, the doctor informs us, makes an excellent ptisan in acute diseases.

MARASA, or **MARASKA**, a central town of Africa, described by the Arabian writers of the twelfth century as of great magnitude, and situated on the southern branch of the Niger, which encompasses Wangara.

MARASMUS, *n. s.* Gr. *μαρασμος* from *μαραινω*, to turn flaccid. A consumption, in which persons waste much of their substance.

Pining atrophy,
Marasmus, and wide-wasting pestilence. *Milton.*

A *marasmus* imports a consumption following a fever; a consumption, or withering of the body, by reason of a natural extinction of the native heat, and an extenuation of the body, caused through an immoderate heat. *Harvey.*

MARAT (Jean Paul), one of the most bloody of the French revolutionists, and a deputy to the

national assembly. He was assassinated in his own house, while bathing, by Charlotte Cordé, on the evening of the 13th of July, 1793. Marat was the most violent enemy to the Brissotines, and, on the 12th of April 1793, proposed to exterminate the conspirators. He was the conductor of an inflammatory Journal, which increased the discontents of the people, and contributed much to the bloody scenes that followed. As to his talents, he seems to have been rather a man of activity than of genius; rather quick than profound, and possessing more penetration than judgment.

MARATEA, a town of Naples, in Basilicata, situated on the gulf of Policastro, and divided into Maratea Inferiore, with 3600 inhabitants, and Maratea Superiore, with 500. Ten miles south-east of Policastro.

MARATHON, in ancient geography, one of the hamlets of Attica; about twelve miles north-east of Athens, towards Bœotia, near the sea. The plain of Marathon, famous for the victory of Miltiades over the Persians, is long and narrow, but consists chiefly of level ground, and therefore admits the operations of cavalry, which formed the main strength of the barbarian army, and with which the Greeks were very poorly provided. Here the Persians, under Datis, pitched their camp, by the advice of Hippas the banished king of Athens, who had solicited the expedition, and had a perfect knowledge of the country. The Persian army consisted of 100,000 infantry, and 10,000 horse. The Athenians were in the utmost consternation. They had, upon the first appearance of the Persian fleet, sent to implore assistance from the other nations of Greece; but some had submitted to Darius, and others trembled at the very name of the Persians. The Lacedæmonians alone promised troops; but various obstacles prevented them from immediately forming a junction with those of the Athenians. This city, therefore, could only rely on its own strength, but it possessed three brave generals, viz. Miltiades, Aristides, and Themistocles, who, by their patriotic exertions, kindled the flame of heroism in the minds of the Athenians. Levies were immediately made. Each of the ten tribes furnished 1000 foot soldiers with a commander. No sooner were the troops assembled than they marched into the plain of Marathon, where the inhabitants of Plataea in Bœotia sent them a reinforcement of 1000 infantry. Scarcely were the two armies in sight of each other, when Miltiades proposed to attack the enemy. Aristides and several others warmly supported this measure; but the rest, terrified at the excessive disproportion of the armies, were for waiting for the succors from Lacedæmon. Opinions being divided, they had recourse to that of the polemarch, or chief of the militia, to decide the matter. Miltiades addressed him with the ardor of a man deeply impressed with the importance of the existing circumstances:—'Athens,' said he, 'is on the point of experiencing the greatest of vicissitudes; ready to become the first power of Greece, or subjected to the tyranny and fury of Hippas. From you alone, Callimachus, she now awaits her destiny. If we suffer the ardor of the troops to cool, they

will shamefully bow beneath the Persian yoke; but, if we lead them on to battle, the gods and victory will favor us. A word from your mouth must now precipitate your country into slavery or preserve her liberty.' Callimachus gave his suffrage, and the battle was resolved on. To insure success, Aristides, and the other generals after his example, yielded to Miltiades the honor of the command which belonged to them in rotation. Miltiades drew up his troops at the foot of a mountain, on a spot of ground scattered over with trees to impede the Persian cavalry. The Plateans were placed on the left wing; Callimachus commanded the right; Aristides and Themistocles were in the centre, and Miltiades every where. An interval of nearly a mile separated the Grecian army from that of the Persians. At the first signal the Greeks advanced over this space running. The Persians astonished at a mode of attack so new, for a moment remained motionless; but to the impetuous fury of the enemy they soon opposed a more sedate and not less formidable fury. After an obstinate conflict, of some hours, victory began to declare for the Grecian army. The right wing dispersed the enemy in the plain, while the left drove them back on a morass that had the appearance of a meadow, in which they stuck fast and were lost. Both these bodies of troops now flew to the succour of Aristides and Themistocles, ready to give way before the flower of the Persian troops in the centre. From this moment the route became general. The Persians, repulsed on all sides, found their only asylum in the fleet. The conquerors pursued them with fire and sword, and took, burnt, or sunk the greater part of their vessels: the rest escaped by dint of rowing. The Persians lost about 6400 men; the Athenians only 192. Miltiades was wounded; Hippias was left dead on the field, as were Stesileus and Callimachus, two of the Athenian generals. Scarcely was the battle over, when a soldier, worn out with fatigue, resolved to carry the first news of the victory to the magistrates of Athens, and, without quitting his arms, he runs, flies, arrives, announces the victory, and falls dead at their feet. This battle was fought on the sixth of Boedromion, in the third year of the seventy-second Olympiad, or 29th September, A. A. C. 490. The next day 2000 Spartans arrived, who, in three days and nights, had marched 1200 stadia. The Athenians neglected nothing to eternalise the memory of those who fell in the battle. It had been usual to inter the citizens who perished in war, at the public expense, in the Cæramicus, without the city; but these were deemed uncommonly meritorious. They were buried, and a barrow was erected on the spot where their bravery had been manifested. Their names were engraven on half columns erected on the plain of Marathon. In the intervals between them were erected trophies bearing the arms of the Persians. An artist of eminence painted all the circumstances of the battle in one of the most frequented porticoes of the city: Miltiades was there represented at the head of the generals, exhorting the troops to fight for their country. Pausanias examined the field of battle about 600 years after this event; and found, on the barrow of the Athenians, pillars containing

the names of the dead under those of the tribes to which they belonged; another for the Plateans and slaves; and a distinct monument of Miltiades, who survived the battle. The Marathonians worshipped those who were slain in battle. Many centuries have elapsed since the age of Pausanias; but the principal barrow still towers above the level of the plain. It is of light fine earth, and has a bush or two growing on it.

MARATI, a nation of pirates, who inhabit the northern coast of Madagascar, and have almost laid desolate the Comorro Isles. They have canoes forty-five feet long, by ten or twelve broad, carrying from fifteen to thirty-five men. In common years they send only thirty canoes; but every fifth year they make a grand expedition of 100, and once occupied and destroyed one with the Querimba Islands. They have even threatened Mosambique. They wear crises like the Malays, and use them dexterously.

MARATTI (Charles), a celebrated painter, born at Camorano, near Ancona, in 1625. He came a poor boy to Rome, when only eleven years old; and at twelve recommended himself to Andrew Sacchi, by his drawings, after Raphael in the Vatican. Sacchi received him into his school, where he continued twenty-five years till his master's death. He was often employed in painting madonnas and female saints. From the finest statues and pictures, he made himself master of the most perfect forms, and the most charming airs. He produced a noble variety of draperies, more artfully managed, more richly ornamented, and with greater propriety, than even the best of the moderns. He was inimitable in adorning the head, and the disposition of the hands and feet. In his younger days he etched a few prints, with equal spirit and correctness. It would be endless to enumerate his celebrated paintings. Innocent XI. appointed him keeper of the paintings in his chapel and the Vatican. Maratti erected two noble monuments for Raphael and Hannibal Caracci, at his own expense, in the pantheon. He died at Rome in 1713, aged eighty-eight.

MARATUBA, a cluster of six islands in the Eastern Seas, off the east coast of Borneo. The largest is about twenty-four miles in length from north to south. It varies in breadth from twelve to four miles. Long. 118° 35' E., lat. 2° 15' N.

MARAUDERS, in a military sense, a party of soldiers, who, without any order, go into the neighbouring houses and villages, when the army is either in camp or garrison, to plunder and destroy, &c. Marauders are a disgrace to the camp, to the military profession, and deserve no better quarter from their officers than they give to the poor peasants, &c.

MARAVEDI, a little Spanish copper coin, worth somewhat more than a French denier, or half a farthing English. The Spaniards still calculate by maravedis, both in commerce and in their finances, though the coin itself is no longer current among them. Sixty-three maravedis are equivalent to a rial of silver; so that the piastre, or piece of eight rials, contains 504; and the pistole of four pieces of eight, 2016 maravedis. In the laws of Spain, we meet with several kinds of maravedis; Alphonsine maravedis, white

maravedis, maravedis of good money, maravedis Combrenos, black maravedis, and old maravedis. When we find maravedis alone, and without any addition, it is to be understood of those mentioned above. The rest are different in value, fineness of metal, time, &c. Mariana asserts, that this coin is older than the Moor's; that it came from the Goths; that it was anciently equal to a third part of the rial, and consequently of twelve times the value of the present maravedi. See COINS.

MARAVI, a lake and country of Eastern Africa, behind Mosambique, extending parallel to the coast of the Indian Ocean, at the distance of about 300 miles. The breadth of the lake is reported not to exceed thirty or forty miles; its length is not known, nor any details of the country.

MARAWAS, MARAVASA, a district of Hindostan, in the Southern Carnatic, situated principally between 9° and 10° of N. lat. To the north it has Tanjore and the Polygar territory; to the south Tinnevely; to the west Madura; and on the east the sea. In length it may be estimated at eighty miles, by thirty the average breadth. It is comprehended in the collectorship of Dindigul.

This district possesses great advantages for external commerce from its maritime situation, and the permanent establishment of a large public investment of cloth which employs its manufactures. The southern division is well supplied with water from streams and tanks. Near the coast the country is in general well cultivated, and is uniformly flat. This district exhibits many magnificent remains of the ancient Hindoo religion. At small distances on the public roads are choultries and pagodas, in the front of which are gigantic figures of ornamented horses, formed of bricks covered over with chunam, and shaded by fruit and lofty banyan trees. The principal towns are Ramnad, Shevavunga, Armacotta, and Tripatoor. It belonged at a remote period to the Hindoo Pandean empire; in modern times it first is traced into the possession of the rajahs of Shevavunga and Ramnad; the first of whom was called the Great Marawa, and the second the Little Marawa, both tributary to the nabob of the Carnatic. The East India Company collected the tribute of the two Marawas from the year 1792; and, in 1801, by treaty with the nabob of Arcot, obtained the complete sovereignty.

MARBURG, a town of Germany, the capital of that part of Upper Hesse which belongs to Hesse-Cassel, is situated chiefly on the right side of the Lahn, on the side of a hill. At the top is a fortified castle, in which the landgrave once resided. It has a Lutheran, Calvinist, and Catholic church, a hospital, two infirmaries, an orphan-house, and a work-house, with a school of industry. A university was established here in 1527, which has still 200 students, and large revenues; and attached are a library, a botanical garden, a lying-in-hospital, a chemical laboratory, and a veterinary school. Population 6500. Forty-five miles south-west of Cassel.

MARBURG, a town of Styria, in Austria, on the river Drave. It is the capital of a circle of this name, and has a large old castle, a gymnasium, and a high school. It has also a brisk

trade in corn and wine, and well-frequented annual fairs. Inhabitants 5000. The circle lies between those of Gratz and Cilley, has an area of 1330 square miles, and 173,000 inhabitants. 116 miles south by west of Vienna.

MARBLE, *n. s., adj., & v. a.* } Fr. *marbre*; Lat. *marmor*.

A superior species of limestone, used in elegant buildings and in statues; a small globe of stone, used in play: made of marble; variegated; also, metaphorically, hard; unfeeling: to marble is to variegate or make like marble.

There were white, green, and blue hangings, fastened with cords of fine linen and purple, to silver rings and pillars of marble: the beds were of gold and of silver, upon a pavement of red, and blue, and white, and black marble. *Ezth. i. 6.*

Thou marble hewest, ere long to part with breath,
And houses rearest unmindful of thy death. *Sandys.*
Shall I see far-fetched inventions? shall I labour
to lay marble colours over my ruinous thoughts? or
rather, though the pureness of my virgin mind be
stained, let me keep the true simplicity of my word.

Sidney.
He plies her hard, and much rain wears the marble.
Shakspeare.

Ingratitude! thou marblehearted fiend,
More hideous when thou shewest thee in a child,
Than the sea monster. *Id. King Lear.*

What pity it was to see those goodly cedars of the temple flaming up higher than they stood in Lebanon! to see those curious marbles, which never felt the dent of the pick-axe or hammer in the laying, wounded with mattocks, and wounding the earth in their fall! *Bp. Hall.*

A greater favour this disorder brought
Unto her servants, than their awful thought
Durst entertain, when thus compelled they prest
The yielding marble of her snowy breast. *Waller.*

Pignation's fate revert is mine,
His marble love took flesh and blood,

All that I worshipped as divine,
That beauty now 'tis understood,
Appears to have no more of life
Than that whereof he framed his wife. *Id.*

Very well sleeked marbled paper did not cast any
of its distinct colours upon the wall with an equal
diffusion. *Boyle.*

Some dry their corn infected with the brine,
Then grind with marbles, and prepare to dine.

Dryden.
The two flat sides of two pieces of marble will
more easily approach each other, between which
there is nothing but water or air, than if there be a
diamond between them; not that the parts of the
diamond are more solid, but because the parts of
water, being more easily separable, give way to the
approach of the two pieces of marble. *Locke.*

Marian
Marbled with sage the hardening cheese she pressed,
And yellow butter Martin's skill professed. *Gay.*
Marbles taught them percussion, and the laws of
motion; nutcrackers the use of the lever.

Arbuthnot and Pope.
The appendix shall be printed by itself, stitched,
and with a marble cover. *Swift.*

A fourth as marble, statue-like and still,
Lay in a breathless, hushed, and stony, sleep. *Byron.*

MARBLE, in natural history, a genus of fossils, being bright and beautiful stones composed of small separate concretions, moderately hard, not giving fire with steel, fermenting with and soluble in acid menstrua, and calcining in a slight fire.

The Latin word *marmor* is derived from the Greek *μαρμαρειν*, to shine or glitter. The colors by which marbles are distinguished are almost innumerable; but the most remarkable are, 1. The black marble of Flanders. 2. Plain yellow. 3. Yellow with some white veins. 4. Yellow with black dendrites. 5. Yellow with brown figures resembling ruins. 6. Black and yellow. 7. Black and white. 8. Pale yellow, with spots of a blackish-gray color. 9. Yellow, white, and red. 10. Pale yellow. 11. Olive color, with deeper colored cross lines, and dendrites. 12. Brownish red. 13. Flesh-colored and yellow. 14. Common red marble. 15. Crimson, white, and gray. 16. Reddish-brown lumps on a whitish ground. 17. Bluish gray. 18. Snowy white. The varieties of marble, numerous as they are, have been improperly augmented by virtuosos, and some people who collect specimens for the sake of gain. The Italians are particularly curious in this way; and most of the names imposed upon marbles are given by them. Every marble brought from an unknown place is called by them *antico*; when distinguished by a number of bright colors it is called *brocatello*, or *brocattellato*. When they want some of the originals to complete a whole set of marbles they either substitute others which have the nearest resemblance to them; or, lastly, they stain white marbles according to their own fancy, and impose them on the world as natural. The finest solid modern marbles are those of Italy, Blankenburg, France, and Flanders. Very fine marble is also found in some of the Western Islands of Scotland. Those of Germany, Norway, and Sweden, are of an inferior kind, being mixed with a kind of scaly limestone; and even several of those above mentioned are partly mixed with this substance, though in an inferior degree. The specific gravity of marble is from 2700 to 2800; that of *Carriera*, a very fine Italian marble, is 2717. Black marble owes its color to a slight mixture of iron. Mr. Bayen found some which contained five per cent. of the metal; notwithstanding which the lime prepared from it was white, but in time it acquired an ochry or reddish-yellow color. Marble, when chemically examined, appears to consist of calcareous earth; and is, like limestone or chalk, capable of being converted into a strong quicklime. Dr. Black derives the origin of marbles, as well as limestone and marl, from the same source, viz. from the calcareous matter of shells and lithophyta. In one kind of limestone, known by the name of Portland stone, and consisting of round grains united together, it was supposed to be composed of the spawn of fish; but comparisons of other phenomena have explained it. It is plain that it has been produced from a calcareous sand, which is found on the shore of some of the islands in the southern climates. By the constant agitation the softer parts are worn off, and the harder parts remain in the form of particles that are highly polished, and which are afterwards gradually made to congregate together by causes of which we have yet no knowledge. There are indeed some few of the limestones and marbles in which we cannot discover any of the relics of the shells: but there are many

signs of their having been in a dissolved or liquefied state; so we cannot expect to see the remains of the form of the shells; but, even in many of the marbles that have the greatest appearance of a complete mixture, we still find often the confused remains of the shells of which they have been originally composed. We should still find it difficult to conceive how such masses should have derived their origin from shells; but, considering the many collections that we have an opportunity of seeing in their steps towards this process, and a little concreted together, so that by their going a step farther they might form limestone and marbles, we may see the possibility of their being all produced in the same manner. Thus vast quantities of shells have been found in the *ci-devant* province of Touraine in France: and indeed there is no place where they have not been found. The lithophyta likewise seem to be a very fruitful source of this kind of earth. In the cold climates, where the moderate degree of heat is not so productive of animal life, we have not such an opportunity of observing this; but in the hot climates the sea as well as the land swarms with innumerable animals; and, at the bottom, with those that produce the corals and madrepores. We learn, from the history of a ship that was sunk in a storm in the Gulf of Mexico, the vast growth there is of these bodies. About thirty years after they attempted to dive into it, to get out a quantity of silver; but they found great difficulty in getting it, from the ship being overgrown with coral. Sir Hans Sloane in the *Philosophical Transactions*, and in his *History of Jamaica*, observes that the ship's timber, the iron, and money, were all concreted by the growth of the calcareous matter. So in a tract of many thousands of years the quantity of it should be very great; and, as this is going on through a very great extent of the bottom of the sea, it will produce very extensive as well as massy collections of calcareous matter. According to Sir William Hamilton, many variegated marbles and precious stones are the produce of volcanoes. See *Philosophical Transactions*, vol. lviii. 12.

MARBLE, ARTIFICIAL. The stucco of which they make statues, busts, basso-relievos, and other ornaments of architecture, ought to be marble pulverised, mixed in a certain proportion with plaster; the whole well sifted, worked up with water, and used like common plaster. See *Stucco*. A kind of artificial marble is also made of the flaky selenites, or a transparent stone resembling plaster; which becomes very hard, receives a tolerable polish, and may deceive a good eye. This kind of selenites resembles Muscovy talc. Another kind is formed by corrosive tinctures, which, penetrating into white marble to the depth of a line or more, imitate the various colors of dearer marble. There is also a preparation of brimstone in imitation of marble. To do this, provide a flat and smooth piece of marble; on this make a border or wall, to encompass either a square or oval table, which may be done either with wax or clay. Then, having several sorts of colors, as white, lead, vermilion, lake, orpiment, masticot, smalt, Prussian blue, &c., melt on a slow fire some

brimstone in several glazed pipkins; put one particular sort of color into each, and stir it well together; then, having before oiled the marble all over within the wall, with one color, quickly drop spots upon it of larger and less size; after this take another color, and do as before, and so on till the stone is covered with spots of all the colors you design to use. When this is done, consider what color the mass or ground of the table is to be; if of a gray color, then take fine sifted ashes, and mix it up with melted brimstone; or if red, with English red ochre; if white, with white lead; if black, with lamp or ivory black. The brimstone for the ground must be pretty hot, that the colored drops on the stone may unite and incorporate with it. When then the ground is poured even all over, put a thin wainscot board upon it, while the brimstone is hot, making also the board hot, which ought to be thoroughly dry, to cause the brimstone to stick the better to it. When the whole is cold, take it up, and polish it with a cloth and oil, and it will look very beautiful.

MARBLE, COLORING. This is a nice art; and, to succeed in it, the pieces of marble on which the experiments are tried must be well polished, and free from the least spot or vein. The harder the marble is, the better will it bear the heat necessary in the operation; therefore alabaster and the common soft white marble are very improper for performing these operations upon. Heat is always necessary for opening the pores of marble, so as to render it fit to receive the colors: but the marble must never be made red hot; for then the texture of it is injured, and the colors are burnt, and lose their beauty. Too small a degree of heat is as bad as one too great; for in this case, though the marble receive the color, it will not be fixed in it, nor strike deep enough. Some colors will strike even cold; but they never sink in so well as when a just degree of heat is used. The proper degree is that which, without making the marble red, makes the liquor boil upon its surface. The menstrua used to strike in the colors must be varied according to the nature of the color to be used. A lixivium made with horses' or dogs' urine, with four parts of quicklime and one of potashes, is excellent for some colors; common lye of wood ashes is very good for others; for some spirit of wine is best; and lastly, for others, oily liquors, or common white wine. The colors which succeed best with the peculiar menstrua are these:—Stone blue dissolved in six times the quantity of spirit of wine, or of the urinous lixivium, and litmus dissolved in common lye of wood ashes. An extract of saffron, and that color made of buckthorn berries, called by painters sap green, both succeed well when dissolved in urine and quicklime, and tolerably well when dissolved in spirit of wine. Vermilion, and a very fine powder of cochineal, also succeed very well in the same liquors. Dragons' blood succeeds in spirit of wine, as does also a tincture of logwood in the same spirit. Alkanet root gives a fine color; but the only menstruum to be used for it is oil of turpentine; for neither spirit of wine nor any lixivium will do with it. There is another kind of *sanguis draconis* com-

monly called dragons' blood in tears, which, mixed with urine, gives a very elegant color. There are other colors which must be laid on dry and unmixed. These are—dragons' blood, of the purest kind, for a red; gamboge for a yellow; green wax for a green; common brimstone, pitch, and turpentine, for a brown color. The marble for these experiments must be made considerably hot, and then the colors are to be rubbed on dry in the lump. Some of these colors, when once given, remain immutable, others are easily changed or destroyed. Thus the red color given by dragons' blood, or by a decoction of logwood, will be wholly taken away by oil of tartar, and the polish of the marble not hurt by it. A fine gold color is given in the following manner:—Take crude sal ammoniac, vitriol, and verdigris, of each equal quantities. White vitriol succeeds best; and all must be thoroughly mixed in fine powder. The staining of marble to all the degrees of red or yellow, by solutions of dragons' blood or gamboge, may be done by reducing these gums to powder, and grinding them with the spirit of wine in a glass mortar. But, for smaller attempts, no method is so good as mixing a little of either of these powders with spirit of wine in a silverspoon, and holding it over burning charcoal. A fine tincture may thus be extracted, and, with a pencil dipt in this, the finest traces may be made on the marble while cold; which on heating it afterwards, either on sand or in a baker's oven, will sink very deep, and remain distinct on the stone. It is very easy to make the ground color of the marble red or yellow, and leave white veins in it. This is to be done by covering the places where the whiteness is to remain with some white paint, or even with two or three folds only of paper; either of which will prevent the color from penetrating. All the degrees of red are to be given to marble by this gum alone; a slight tincture of it, without the assistance of heat to the marble, gives only a pale flesh color; but the stronger tinctures give it deeper: to this the assistance of heat adds greatly. The addition of a little pitch to the tincture gives it a tendency to blackness, or any degree of deep red that may be desired. A blue color may be given also to marble by dissolving turnsol in lixivium, in lime and urine, or in the volatile spirit of urine; but this has always a tendency to purple, made in either of these ways. A better blue is furnished by the Canary turnsol, which needs only to be dissolved in water, and drawn on with a pencil: it penetrates very deeply into the marble, and the color may be increased by drawing the pencil, wetted afresh, several times over the same lines. This color is apt to diffuse itself irregularly, but may be kept in regular bounds by circumscribing its lines with beds of wax, or any such substance. It should always be laid on cold, and no heat given even afterwards to the marble. One great advantage of this color is, that it is easily added to marbles already stained with other colors, is a very beautiful tinge, and lasts a long time.

MARBLE, ELASTIC, an extraordinary species of fossil, of which there are several tables preserved in the house of prince Borghese at Rome, and

known to the curious. F. Jaquer, a celebrated mathematician, has given a description in the *Literary Gazette* of Paris. There are five or six tables of it; their length is about two feet and a half, their breadth about ten inches, and the thickness a little less than three. They were dug up, says abbé Fortis, in the feod of Mondragone; the grain is either of Cararese marble, or of the finest Greek. They seem to have suffered some attack of fire. They are very dry, do not yield to external impression, resound to the hammer like other congenerous marbles, and are perhaps susceptible of a polish. Being set on end, they bend, oscillating backward and forward; when laid horizontally, and raised at one end, they form a curve, beginning towards the middle: if placed on a table, and a piece of wood, or any thing else, is laid under them, they make a salient curve, and touch the table with both ends. Notwithstanding this flexibility, they are liable to be broken if indiscreetly handled; and therefore one table only, and that not the best, is shown to the curious. Formerly they were altogether in the prince's apartment on the ground floor.

MARBLES, ARUNDEL. See **ARUNDELIAN MARBLES.**

MARBLES FOR PLAYING, OR MARBLE BOWLS, are mostly imported from Holland; where it is said they are made by breaking the stone alabaster, or other substance, into pieces or chips of a suitable size; they are put into an iron mill which turns by water: there are several partitions with rasps within, cut floatways, not with teeth, which turn constantly round with great swiftness; the friction against the rasps makes them round, and, as they are formed, they fall out of different holes, into which size or chance throws them.

MARbled CHINA-WARE, a species of porcelain or china-ware, which seems to be full of cemented flaws. It is called by the Chinese, who are very partial to it, *tsou tchi*. It is generally plain white, sometimes blue, and has exactly the appearance of a piece of china which had been first broken, and then had all the pieces cemented in their places again, and covered with the original varnish. The manner of preparing it is easy. Instead of the common varnish of the china-ware, which is made of what they call oil of stone and oil of fern mixed together, they cover this with a simple thing made of a sort of coarse agates, calcined to a white powder, and separated from the grosser parts by water, after long grinding in mortars. When the powder has been thus prepared it is left moist, or in form of a sort of cream, with the last water that is suffered to remain in it, and this is used as the varnish. Our crystal would serve full as well as those coarse agates. The occasion of the singular appearance of this sort of porcelain is, that the varnish never spreads evenly, but runs into ridges and veins. Those often run naturally into a sort of *Mosaic* work, which can scarcely be taken for the effect of chance. If the marbled china be desired blue, they first give it a general coat of this color by dipping the vessel into a blue varnish, and, when this is thoroughly dry, they add another coat of this agate oil.

MARBLEHEAD, a post town and sea-port of Essex county, Massachusetts, four miles and a half south-east of Salem, sixteen north-east of Boston, and from Washington 456 miles. Population 5900. It contains a bank, a custom house, two insurance offices, a market house, alms house, two rope walks, an academy, and five houses of public worship, two for Congregationalists, one for Episcopalians, one for Methodists, and one for Baptists.

The academy was incorporated in 1792, and is a respectable and flourishing seminary, having a limited number of pupils, thirty of each sex, under the care of a preceptor and preceptress. The building is a spacious and handsome edifice. The bank house is a superb edifice, erected in 1766 for a private mansion, at the expense of £10,000 sterling, including furniture. It is sixty-six feet long, forty-four broad, and thirty-five high, of three stories; and contains the bank, the custom house, and an insurance office.

This town is much more largely concerned in the bank fisheries than any other in the United States, and the business is carried on with great spirit and enterprise. There are now employed in the bank and coast fisheries 103 vessels, carrying 7739 tons, and giving occupation to 760 men; eighty of these vessels, of sixty tons and upwards, are engaged in the fishery of the Grand Bank and of Newfoundland. The shipping employed in foreign commerce amounts to 3794 tons. The total amount belonging to this port is 12,301 tons. The harbour lies in front of the town, a mile long from north-east to south-west, and half a mile wide, and is formed by a narrow strip of land making a semicircle at the south-west. It is very excellent, and may be entered at all times, but is considerably exposed to north-east storms. It is defended by fort Sewall, which stands on a point near the entrance of the harbour, and is one of the finest forts in the country. It is formed by two angular batteries of earth and stone, with a stone and brick wall in their rear. The pieces mounted are two twenty-four, and ten eighteen pounders. The barracks, which are bomb proof, are capable of accommodating a garrison of sixty or seventy men, which is about the number now stationed here.

Few towns in the United States suffered so much as this during the revolutionary and the late war. At the peace of December, 1814, no fewer than 500 of her sons were in foreign prisons. The situation of the town is remarkably salubrious. The average number of births in a year is about 200: of deaths, including those abroad, 120.

MARBLETOWN, a town of Ulster county, New York; ten miles south-west of Kingston. Population 3363.

MARBLING, the art of preparing and coloring marbled paper. There are several kinds of marbled paper; but the principal difference of them lies in the forms in which the colors are laid on the ground: some being disposed in whirls or circumvolutions; some in jagged lengths; and others only in spots of a roundish or oval figure. The general manner of managing each kind is, nevertheless, the same; the paper is dipped in a

solution of gum tragacanth, or, as it is commonly called, gum-dragon; over which the colors, previously prepared with ox-gall and spirit of wine, are first spread. The peculiar apparatus necessary for this purpose is, a trough for containing the gum tragacanth and the colors; a comb for disposing them in the figure usually chosen; and a burnishing stone for polishing the paper. The trough may be of any kind of wood; and must be somewhat larger than the sheets of paper, for marbling which it is to be employed; but the sides of it need only rise about two inches above the bottom; for, by making it thus shallow, the less quantity of the solution of the gum will serve to fill it. The comb may be also of wood, and five inches long, but should have brass teeth, which may be about two inches long, and placed at about a quarter of an inch from each other. The burnishing stone may be of jasper or agate; but, as these stones are very dear when of sufficient size, marble or glass may be used, provided their surface be polished. The solution of gum tragacanth must be made by putting a sufficient proportion of the gum, which should be white, and clear from all foulnesses, into clean water, and letting it remain a day or two, frequently breaking the lumps, and stirring it till the whole appear dissolved and equally mixed with the water. The consistence of the solution should be nearly that of strong gum water used in miniature painting; and, if it appear thicker, water must be added; or, if thinner, more of the gum. When the solution is thus brought to a due state, it must be passed through a linen cloth; and, being then put into the trough, it will be ready to receive the colors. The colors employed for red are carmine, lake, rose pink, and vermilion; but the last two are too glaring, unless they be mixed with rose pink or lake, to bring them to a softer cast; and carmine and lake are too dear for common purposes. For yellow, Dutch pink and yellow ochre may be employed: for blue, Prussian blue and verditer: for green, verdigris, a mixture of Dutch pink and Prussian blue, or verditer, in different proportions: for orange, the orange lake, or a mixture of vermilion, or red lead, with Dutch pink: for purple, rose pink and Prussian blue. These colors should be ground with spirit of wine till they be of a proper fineness; and then, at the time of using them, a little fish-gall, or the gall of a beast, should be added, by grinding them over again with it. The proper proportion of the gall must be found by trying them; for there must be just so much as will suffer the spots of color, when sprinkled on the solution of the gum-tragacanth, to join together, without intermixing or running into each other. The solution of the gum-tragacanth must then be poured into the trough; and the colors, being in a separate pot, with a pencil appropriated to each, must be sprinkled on the surface of the solution, by shaking the pencil, charged with its proper color, over it; and this must be done with the several kinds of color desired, till the surface be wholly covered. When the marbling is proposed to be in spots of a simple form nothing more is necessary; but, where the whirls or snail-shell figures are wanted, they must be made by a quill; which must be put among the spots

to turn them about, till the effect be produced. The jagged lengths must be made by the comb, which must be passed through the colors from one end of the trough to the other, and will give them that appearance: but, if they be desired to be pointed both ways, the comb must be again passed through the trough in a contrary direction; or, if some of the whirls or snail-shell figures be required to be added, they may be yet made by the means before directed. The paper should be previously prepared for receiving the colors, by dipping it over-night in water, and laying the sheets on each other with a weight over them. The whole being thus ready, the paper must be held by two corners, and laid in the most gentle and even manner on the solution covered with the colors; and there softly pressed with the hand, that it may bear every where on the solution: after which it must be raised and taken off with the same care, and then hung to dry across a proper cord, subtended near at hand for that purpose; and in that state it must continue till it be perfectly dry. It then remains only to give the paper a proper polish: in order to which, it is first rubbed with a little soap; and then must be thoroughly smoothed by the glass polishers, such as are used for linen, and called the calendar glasses. After which it should be again rubbed by a burnisher of jasper or agate, or of glass highly polished; for on the perfect polish of the paper depend in a great measure its beauty and value. Gold or silver powders may be used, where desired, along with the colors, and require only the same treatment as they, except that they must be first tempered with gum water.

MARBLING OF BOOKS or PAPER is performed thus: dissolve four ounces of gum arabic into two quarts of fair water; then provide several colors mixed with water in pots or shells; and, with pencils peculiar to each color, sprinkle them by way of intermixture upon the gum water, which must be put into a trough, or some broad vessel; then with a stick curl them, or draw them out in streaks, to as much variety as may be done. Having done this, hold the book or books close together, and only dip the edges in, on the top of the water and colors, very lightly; which done, take them off, and the plain impression of the colors in mixture will be upon the leaves: doing the ends and the front of the book in the same manner.

MARBLING THE COVERS OF BOOKS is performed by forming clouds with aquafortis or spirit of vitriol mixed with ink, and afterwards glazing the covers. See BOOK-BINDING.

MARCA (Peter de), one of the greatest ornaments of the Gallican church, was born in Bearn, of an ancient family, in 1594. He first studied the law, was made president of the parliament of Bearn, and, going to Paris in 1639, was made a counsellor of state. His literary merits appear from his History of Bearn. By the king's order he published a work, *De Concordia Sacerdotii et Imperii, sive de libertatibus Ecclesie Gallicae*, in refutation of a book that appeared under the title of *Optatus Gallus*: and on this account, when, on the death of his wife, he was nominated bishop of Conserans, the pope refused the bulls in his favor, until by another work he explained

way all he had said to the limitation of the papal power. He obtained his confirmation, after seven years suspense, in 1648; was translated to the archbishopric of Thoulouse in 1652; and was made minister of state in 1658. He was made archbishop of Paris in 1662; and died there soon after. His *Posthumous Works*, with prefaces, notes, &c., were published by M. Baluze. He is deservedly censured for accommodating his learning and talents to his views of interest and ambition.

MARCASITE, *n. s.* Fr. *marcassite*. An old and exploded term for various ores difficult of reduction. See below.

Here *marcasites* in various figures wait,
To ripen to a true metallic state.

Garth's Dispensatory.

The acid salt dissolved in water is the same with oil of sulphur per campanam, and abounding much in the bowels of the earth, and particularly in *marcasites*, unites itself to the other ingredients of the *marcasite*, which are bitumen, iron, copper, and earth, and with them compounds alum, vitriol, and sulphur: with the earth alone it compounds alum; with the metal alone, and metal and earth together, it compounds vitriol; and with the bitumen and earth it compounds sulphur: whence it comes to pass, that *marcasites* abound with those three minerals.

Newton's Opticks.

The writers of minerals give the name *pyrites* and *marcasites* indifferently to the same sort of body: I restrain the name of *pyrites* wholly to the nodules, or those that are found lodged in strata that are separate: the *marcasite* is part of the matter that either constitutes the stratum, or is lodged in the perpendicular fissures.

Woodward.

The term *marcasite* has been very improperly used by some for bismuth, and by others for zinc: the more accurate writers, however, always express a substance different from either of these by it, sulphureous and metallic. The *marcasite* is a solid hard fossil, naturally found among the veins of ores, or in the fissures of stone: the variety of forms this mineral puts on is almost endless. There are, however, only three distinct species of it: one of a bright gold colour, another of a bright silver, and a third of a dead white: the silvery one seems to be peculiarly meant by the writers on the *Materia Medica*. *Marcasite* is very frequent in the mines of Cornwall, where the workmen call it *mundick*, but more in Germany, where they extract vitriol and sulphur from it.

Hill.

MARCASITE, in mineralogy, is a name that has long been given indifferently to all sorts of minerals; to ores, pyrites, and semimetals. Lately it seems to be confined to pyrites; and Wallerius proposes to confine it to such pyrites as are regularly formed. See **PYRITES**.

MARCEL (G.), advocate to the parliament of Paris, a French chronological writer of the seventeenth century. He published, 1. *Tablettes Chronologiques, Contenant, avec ordre, l'état de l'Eglise en Orient et en Occident*; Amsterd. 1696, 16mo. 2. *Tablettes Chronologiques, contenant la suite des Papes, Empereurs, et qui ont Règné depuis la naissance de Jesus Christ en Europe, jusqu'au present*: 24mo. Paris, 1699, elegantly engraved on copper; both dedicated to Louis XIV.

MARCELLIANS, a sect of ancient heretics who flourished about the end of the second cen-

tury, so called from Marcellus of Ancyra, their leader, who was accused of reviving the errors of Sabellius. St. Epiphanius observes, that there was a great deal of dispute with regard to the real tenets of Marcellus; but that, as to his followers, it is evident they did not own the three hypostases; for Marcellus considered the Son and Holy Ghost as two emanations from the divine nature, which, after performing their respective offices, were to return again into the substance of the Father; an opinion altogether incompatible with the belief of three distinct persons in the Godhead.

MARCELLO (Benedict), a celebrated musician, descended from one of the most illustrious families in Venice. He lived in the beginning of the eighteenth century, and composed anthems, cantatas, and other works, which the connoisseurs rank as high as any of the musical compositions which the Italian school has produced. 'He is the Pindar of music,' says M. de la Borde. 'In analysing his works we discover a profound knowledge and great address; but there is a difficulty attending the execution of them which is almost insurmountable. It requires a voice possessed of great powers, and accustomed to the most extraordinary intervals.'

MARCELLUS (Marcus Claudius), a famous Roman general, who, after the first punic war, conducted an expedition against the Gauls. Here he obtained the *Spolia Opima*, by killing, with his own hand, Viridomarus, the king of the Gauls. This success rendered him popular, and soon after he was entrusted to oppose Hannibal in Italy. He was the first Roman who obtained some advantage over this celebrated Carthaginian, and showed his countrymen that Hannibal was not invincible. The troubles which were raised in Sicily by the Carthaginians, at the death of Hieronymus, alarmed the Romans; and Marcellus, in his third consulship, was sent with a powerful force against Syracuse. He attacked it by sea and land; but his operations proved long ineffectual, and the invention and industry of Archimedes baffled all the efforts, and destroyed all the stupendous machines and military engines of the Romans during three successive years. The perseverance of Marcellus at last obtained the victory. After this conquest Marcellus was called to oppose Hannibal a second time. In this campaign he behaved with greater vigor than before; the greatest part of the towns of the Samnites, which had revolted, were recovered by force of arms, and 3000 of the soldiers of Hannibal made prisoners. Some time after, in an engagement with the Carthaginians, Marcellus had the disadvantage; but on the next day a more successful skirmish vindicated his military character and the honor of the Roman soldiers. Marcellus, however, was not sufficiently vigilant against the snares of his adversary. He imprudently separated himself from his camp, and was killed in an ambuscade, in the sixtieth year of his age, in his fifth consulship, A. U. C. 544. His body was honored with a magnificent funeral by the conqueror, and his ashes were conveyed in a silver urn to his son.

MARCELLUS, a post town of Onondaga county, New York, ten miles west of Onondaga, and 157

west of Albany. Population 4725. This is a large and valuable agricultural town, has some manufacturing establishments, and contains two considerable villages, Marcellus and Skeneatles.

MARCH, *v. n., v. a., & n. s.* Sax. *meanc*; Fr. *marcher*; as Junius thinks, from Mars, the god of war; others, from the Goth. *markga*, to go in a measured pace. See **MARK**. To move in an orderly or military manner: put in military or regular movement: such movement, a soldier's journey; a signal to march; a deliberate or laborious walk.

He *marched* in battle array with his power against Arphaxad. *Judges* i. 13.

Plexirtus finding that, if nothing else, famine would at last bring him to destruction, thought better by humbleness to creep where by pride he could not *march*. *Sidney*.

The drums presently striking up a *march*, they make no longer stay, but forward they go directly. *Knolles*.

Well *march* we on,
To give obedience where tis truly owed.

Shakespeare.

Doth York intend no harm to us,
That thus he *marched* with thee arm in arm? *Id.*

Our bodies every footstep that they make,
March towards death, until at last they die.

Davies.

These troops came to the army harassed with a long and wearisome *march*, and cast away their arms and garments, and fought in their shirts.

Bacon's War with Spain.

Who is there so incurably heartless, so desperately sluggish or stupid, whom the sight of a valiant leader, *marching* before into the mouth of danger, will not infuse fire and vigor into? *Burrow*.

Cyrus *marching* his army for divers days over mountains of snow, the dazzling splendor of its whiteness prejudiced the sight of very many of his soldiers. *Boyle on Colors.*

My father, when some days before his death

He ordered me to *march* for Utica,

Wept o'er me.

Addison's Cato.

We came to the roots of the mountain, and had a very troublesome *march* to gain the top of it.

Addison on Italy.

March them again in fair array,

And bid them form the happy day;

The happy day designed to wait

On William's fame, and Europe's fate. *Prior*.

Who should command, by his Almighty nod,
These chosen troops unconscious of the road,
And unacquainted with the appointed end,
Their *marches* to begin, and thither tend. *Blackm.*

Waller was smooth, but Dryden taught to join
The varying verse, the full resounding line,
The long majestic *march*, and energy divine. *Pope*.

In a fortnight or three weeks, added my uncle Toby, smiling, he might *march*—He will never *march*, an' please your honour, in this world, said the corporal.—He will *march*, said my uncle Toby, rising up from the side of the bed, with one shoe off:—An' please your honour, said the corporal, he will never *march* but to his grave. *Sterne*.

Had he continued in that station, I must have *marched* off to be one of the little underlings about a farm-house. *Burns*.

MARCH, *n. s.* Lat. *martius*, of Mars. See below. Fr. *Mars*; Teut. *Mertz*. The third month

March is drawn in tawny, with a fierce aspect, a helmet upon his head, to shew this month was dedicated to Mars. *Peacham*.

MARCH, MARTIUS. Among the Romans, March was the first month; and in some ecclesiastical computations that order is still preserved; particularly in reckoning the number of years from the incarnation of our Saviour, from the 25th of March. Romulus divided the year into months; to the first of which he gave the name of his supposed father, Mars. Ovid, however, observes, that the people of Italy had the month of March before Romulus's time; but that they placed it very differently, some making it the third, others the fourth, some the fifth, and others the tenth month of the year. In this month the Romans sacrificed to Anna Perenna; began their comitia; adjudged their public farms and leases; the mistresses served the slaves and servants at table, as the masters did in the Saturnalia; and the vestals renewed the sacred fire. This month was always under the protection of Minerva, and consisted of thirty-one days. The ancients held this an unhappy month for marriage, fearing lest, as in some of our modern dwellings, Mars should intrude himself amongst the household gods.

MARCH, in the military art. In the marches of the Jewish armies they made use of trumpets, to the different sounds of which they prepared them by packing up their baggage, putting themselves in readiness, and attending at the standards to wait the signal for marching. The Rabbies suppose that the Israelites marched in the same order they were placed in the camp. The Greeks never marched against their enemies till favorable omens encouraged their enterprise. An eclipse of the moon, or any untoward accident, or the intervening of what they esteemed an unlucky day, entirely prevented their march. But of all the Greeks the Lacedemonians were the most nice and scrupulous. The heavenly bodies directed all their motions; and it was an invariable maxim with them never to march before the full moon. The Greeks are particularly remarked by Homer for marching in good order and profound silence; whereas the barbarian forces were all noise, clamor, and confusion. The marches of the Roman armies were performed with the greatest order and despatch, inasmuch that their unexpected presence often damped the spirits of their enemies. The Roman soldiers were inured to the military pace, that is, to walk twenty miles in five hours, though they carried burdens of sixty pounds weight. Of all the mechanical parts of war, in modern times, none is more essential than that of marching. It may be justly called the key which leads to all sublime motions and manœuvres of an army; for they depend entirely on this point. A man can be attacked in four different ways; in the front, on both flanks, and in the rear; but he can defend himself, and annoy the enemy, only when placed with his face towards him. Hence it follows that the general object of marching is reduced to three points only; to march forwards, and on both sides, because it is impossible to do it for any time backwards, and by that means face the enemy wherever he pre-

sents himself. The order of march of the troops must be so disposed, that each should arrive at their rendezvous, if possible, on the same day. The quarter-master general, or his deputy, with an able engineer, should reconnoitre the country, to obtain a perfect knowledge of it and the enemy, before he forms his routes. Before a march, the army generally receives several days' bread. The quarter-masters, camp color-men, and pioneers, parade according to orders, and march immediately after, commanded by the quarter-master general or his deputy. They are to clear the roads, level the ways, make preparations for the march of the army, &c. The general, for instance, beats at two o'clock, the assembly at three, and the army is to march in twenty minutes after. Upon beating the general, the village and general officers, guards, quarter and rear-guards, join their respective corps; and the army pack up their baggage. Upon beating the assembly, the tents are to be struck, and sent, with the baggage, to the place appointed, &c. The companies draw up in their several streets, and the rolls are called. At the time appointed, the drummers are to beat a march, and fifers play at the head of the line, upon which the companies march out from their several streets form battalions as they advance to the head of the line, and then halt. The several battalions are formed into columns by the adjutant-general, and the order of march, &c., is given to the general officers who lead the columns. The cavalry generally march by regiments or squadrons. The heavy artillery always keep the great roads in the centre of the columns, escorted by a strong party of infantry and cavalry. The field pieces accompany the columns. Each soldier generally marches with thirty-six round of powder and ball, and two good flints; one of which is to be fixed in the cock of his firelock. The routes must be formed so that no columns cross one another on the march.

MARCHAND (John Lewis), a native of Lyons, who shares with the celebrated D'Aquin the glory of having carried the art of playing on the organ to the highest perfection. When very young he went to Paris; and, happening to be in the chapel of the college of Louis XIV. when they were waiting for the organist, he offered to supply his place. His playing gave so great satisfaction, that the Jesuits kept him in the college, and supplied him with every facility for improvement. He continued to play the organ of their chapel; and, though many advantageous places were offered him, he refused to accept them. He died in Paris in 1732, aged sixty-three. He composed two books of Pieces for the Harpsichord, much esteemed by the connoisseurs.

MARCHAND (Prosper), was brought up in Paris to the profession of a bookseller, and in the knowledge of books. He corresponded with several learned men, among whom was Bernard, the continuator of the *Nouvelles de la Republique des Lettres*, and furnished him with the literary anecdotes of France. Marchand, having embraced the Protestant religion, went to join Bernard in Holland, where, by his knowledge of books, he was so eminently distinguished, that

he was consulted from all parts of Europe. He was also one of the principal authors of the *Journal Literaire*, and furnished extracts for the other journals. He died at an advanced age, June 14th, 1756, and left his fortune to a society instituted at the Hague for the education of poor people. His library and MSS. were left by his will to the University of Leyden. He wrote, 1. *The History of Printing*; a work full of erudition and critical discussions; Hague, 1740, 4to. *Abbé Mercier*, of Saint-Leger de Soissons, gave, in 1776, 4to., a supplement to this history, which is equally curious and accurate. 2. *A Historical Dictionary*, or *Memoirs Critical and Literary*; Hague, 1758, 2 vols. folio. 3. A new edition of *Bayle's Dictionary*; and, 4. *Letters on the Cymbalum Mundi*, &c.

MARCHAND ISLAND, an island of the South Pacific Ocean, discovered by captain Marchand, and forming one of a group called by him *Revolution Islands*. It was only seen at a distance, and appeared to be mountainous. Long. 142° 19' W., lat. 9° 21' S.

MARCHANTIA, in botany, a genus of the natural order of algæ, and cryptogamia class of plants: **MALE CAL.** peltate, and covered below with monopetalous corollæ; the antheræ are multifid: **FEMALE CAL.** sessile, campanulate, and polyspermous. There are eight species, the most remarkable are,

1. *M. conica*, or conic mushroom merchantia, with warted leaves, grows on moist shady banks by the sides of rivulets. The leaves are broad, flat, about two inches long, dichotomous, obtusely lobed, and lie upon one another. Their surface is of a pale green glossy color, curiously tessellated with rhomboidal and hexagonal tubercles, each having a white vesicle in the centre, with a puncture on its head. The leaves have a peculiarly strong fragrant smell, and acrid aromatic taste. They are said to possess the same attenuating quality as the polymorpha, but in a higher degree. They are also recommended as antiscorbutic.

2. *M. polymorpha*, or great star-handed merchantia, is a native of Britain, growing on the banks of rivulets, on shady moist rocks, the sides of wells, and sometimes bogs. The leaves are about three inches long; from half an inch to an inch broad, lying flat on the ground, and adhering closely to it by numerous downy radicles, which grow out of the middle and base of the leaf on the under side. These leaves are situated on their edges, their upper surface of a dark, shining, green color, reticulated with numerous, minute, rhomboidal, or lozenge-like scales; variously divided into obtuse lobes, and in the middle by a blackish purple vein; their under side is paler, and their substance coriaceous, and nearly opaque. There are three varieties, from one of which is produced a yellow powder, showing a most curious mechanism by the microscope. The leaves have a strong aromatic smell, and acrid taste; and are recommended, in a decoction of skimmed milk, for the jaundice and disorders of the liver.

MARCHE, a town of the Netherlands, in the province of Liege. Population 1400. Thirty miles south of Namur.

MARCHERS, or **LORDS MARCHERS**, were noblemen who lived on the marches of Wales or Scotland, and, according to Camden, had their laws and potestatem vitæ, &c., like petty kings, which are abolished by the stat. 27 Hen. VIII., c. 26, and 1 Edw. VI. c. 10. In old records the lords marchers of Wales were styled *Marchiones de Marchia Walliæ*.

MARCHES, *n. s.* } Sax. *mearc*, Fr. *marche* ;
MARCHER, *n. s.* } Goth. *marcu*. Borders ;
 limits ; confines : the marcher was the ruler or president of the marches.

They of those *marches*
 Shall be a wall sufficient to defend
 Our inland from the pilfering borderers.

Shakspeare.

The English colonies were enforced to keep continual guards upon the borders and *marches* round them.

Davies.

Many of our English lords made war upon the Welshmen at their own charge ; the lands which they gained they held to their own use ; they were called lords *marchers*, and had royal liberties. *Id.*

MARCHES (*marchia*, from the German *march*, i. e. lines, or from the French *marque*, a sign), the notorious distinction between two countries or territories. *Marches*, in British geography, are the limits between England and Wales, or between England and Scotland, which last are divided into west- and middle *marches* ; by 4 Hen. V. c. 7 ; 22 Ed. IV. c. 8 ; 24 Hen. VIII. c. 9. There was formerly a court called the court of the *marches* of Wales, where pleas of debt or damages, not above the value of £50, were tried and determined ; and if the council of the *marches* held pleas for debts above that sum, &c., a prohibition might be awarded.

MARCHET, or **MARCHETTA**, a pecuniary fine, anciently paid by the tenant to his lord, for the marriage of one of the tenant's daughters. This custom obtained, with some difference, throughout all England and Wales, as also in Scotland ; and it still continues to obtain in some places. According to the custom of the manor of Dinover, in Caermarthenshire, every tenant at the marriage of his daughter pays 10s. to the lord ; which, in the British language, is called *gwahmerched*, i. e. maid's fee. In Scotland, and the north of England, the custom was for the lord to pass the first night with the bride of his tenant ; but this abominable usage was abrogated by king Malcolm III., at the instance of his queen ; and instead thereof a mark was paid by the bridegroom to the lord ; whence it was called *marchetta mulieris*. See BROUGH, ENGLISH.

MARCHIONESS, *n. s.* From Lat. *marchio*.
 The lady of a marquis.

I thought I wol with other maidens stond,
 That ben my felawes, in our dore, and see
 The *marchinesse*. *Chancer. Cant. Tales.*

The king's majesty
 Does purpose honour to you, no less flowing
 Than *marchioness* of Pembroke.

Shakspeare. Henry VIII.

From a private gentlewoman he made me a *marchioness*, and from a *marchioness* a queen, and now he intends to crown my in- with the glory of martyrdom.

Apollinegms.

The lady *marchioness*, his wife, solicited very diligently the timely preservation of her husband.

Clarendon.

MARCHIPANE, *n. s.* Fr. *massepâne*. Corrupted from Lat. *massa panis*. A kind of sweet bread or biscuit.

Along whose ridge such bones are met,

Like comfits round in *marchipane* set.

Sidney.

MARCIANUS I., emperor of Constantinople, a native of Thrace, born of an obscure family. After he had for some time served in the army, as a common soldier, he was made private secretary to one of the officers of Theodosius. His address and talents raised him and on the death of Theodosius II., A. D. 450 he was invested with the imperial purple. He showed himself active and resolute ; and when Attila, the barbarous king of the Huns, demanded the annual tribute, which his cowardly predecessors had regularly paid, he firmly said, that ' he kept his gold for his friends, but that iron was the metal which he had prepared for his enemies.' In the midst of universal popularity Marcianus died, after a reign of six years, in the sixty-ninth year of his age, as he was making preparations against the barbarians that had invaded Africa. His death was long lamented ; and his reign has been called the golden age. He married Pulcheria the sister of Theodosius. In the years of his obscurity he found a man who had been murdered, and had the humanity to give him a private burial : from which circumstance he was accused of the homicide, imprisoned, and condemned to death ; and the sentence would have been executed had not the real murderer been discovered.

MARCID, *adj.* Lat. *marcidus*. Lean ; pinning ; withered.

A burning colliquative fever, the softer parts being melted away, the heat continuing its adustion upon the drier and fleshy parts, changes into a *marcid* fever.

Hurvey.

He on his own fish pours the noblest oil ;

That to your *marcid* dying herbs assigned,

By the rank smell and taste betrays its kind.

Dryden.

MARCION, the founder of the Marcionites, a native of Pontus, and son of a bishop. He at first made profession of the monastic life, but was excommunicated by his father, who would never admit him again into the communion of the church. On this he abandoned his own country, and retired to Rome, where he began to preach. He laid down two principles, the one good, the other evil ; between these he imagined an intermediate kind of deity of a mixed nature, who was the creator of this inferior world, and the god and legislator of the Jewish nation. The other nations, who worshipped a variety of gods, he supposed to be under the empire of the evil principle. These two conflicting powers exercise oppressions upon rational and immortal souls ; and therefore the supreme God, to deliver them from bondage, sent to the Jews a being more like unto himself, his son Jesus Christ, clothed with a certain shadowy resemblance of a body ; this celestial messenger was attacked by the prince of darkness, and by the god of the Jews, but without effect. Those

who follow the directions of this celestial conductor, mortify the body by fastings and austerities, and renounce the precepts of the god of the Jews, and of the prince of darkness, shall after death ascend to the mansions of felicity and perfection. The rules which Marcion prescribed to his followers were excessively austere, expressly prohibiting wedlock, wine, flesh, and all the external comforts of life. Marcion denied the real birth, incarnation, and passion of Jesus Christ, and held them to be all apparent only. He denied the resurrection of the body; and allowed none to be baptised but those who preserved their continence; but these might be baptised three times. In many things he followed the sentiments of Cerdon, and rejected the law and the prophets. He pretended the gospel had been corrupted by false prophets, and allowed none of the evangelists but St. Luke, whom also he altered in many places, as well as the epistles of St. Paul.

MARCIONISTÆ, MARCIONISTS, or MARCIONITES, a very ancient and popular sect of heretics, who, in the time of St. Epiphanius, spread over Italy, Egypt, Palestine, Syria, Arabia, Persia, and other countries: so named from their author Marcion.

MARCOMANNI, an ancient people of Germany, who seem to have taken their name from their situation on the marches, east of the Upper Rhine, and north of the Danube. Cluverius allots to them the duchy of Wurtemberg, a part of the palatinate between the Rhine and the Neckar, the Brisgau, and a part of Suabia, lying between the springs of the Danube and the Bregenz: they afterwards removed to the country of the Boii, whom they drove more to the east, occupying what is now called Bohemia.—Strabo, Villelius.

MARCOSIANS, or Colobarsians, an ancient sect in the church, a branch of the Valentinians. St. Irenæus speaks at large of the leader of this sect, Marcus, who was reputed a great magician. The Marcosians had a great number of apocryphal books, which they held canonical.

MARCOUR, n.s. Lat. *marcor*. Leanness; the state of withering; waste of flesh.

Considering the exolution and languor ensuing the action of venery in some, the extenuation and *marcour* in others, it much abridgeth our days.

Broune's Vulgar Errors.

A *marcour* is either imperfect, tending to a lesser withering, which is curable; or perfect, that is, an entire wasting of the body, excluding all means of cure.

Harvey.

MARE, n.s. Sax. *mære*; Dan. *mar*; Goth. *mer* (while, oddly enough, Goth. *mare* is a horse). The female of a horse.

A pair of coursers born of heavenly breed,

Whom Circe stole from her celestial sire,

By substituting *mares*, produced on earth,

Whose wombs conceived a more than mortal birth.

Dryden.

MARE, n.s. Sax. *mære*; Goth. *mar*; Dan. and Teut. *mare*. Also designated as the night mare, or incubus; an oppression felt on the stomach in sleep. The northern nations called any female elf or phantom by the name of

mare. Minshew says 'because they that be troubled with this disease in the night are so pressed that they seem to have a whole horse laid on them; or that horses, or chiefly mares, are troubled herewith, that in the morning you shall find them all in a sweat.'

Mab, his merry queen by night,
Bestrides young folks that lie upright,
In elder times the *mare* that light,
Which plagues them out of measure.

Drayton.

Mushrooms cause the incubus, or the *mare* in the stomach.

Bacon's Natural History.

MARE. See EQUUS, and HORSE. Before a mare is covered, she should be in the house about six weeks, during which time she should be well fed with good hay, and oats well sifted; and, to render her conception the more certain, nearly a quart of blood may be taken from each side of her neck, about five or six days before covering. Another method to bring a mare in season and make her retain is to give her, for eight days before you bring her to the horse, about two quarts of hemp seed in the morning, and as much at night; and, if she refuses to eat it, to mingle it with a little bran or oats, or else to let her fast for a while. After covering, let her, for three or four weeks have the same diet as before, and be kept clean in the stable, with her feet well pared and thin shod. If the mare has but little milk, boil as much as you can get from her with the leaves of lavender and spike, and bathe the udder with it warm, till the knobs and knots are dissolved. She should now drink only white water, which is bran put into water; give her also sweet mashes, and, a month after foaling, let her have a mash with some brimstone or savin in it.

MARECHAL (Peter Sylvanus), a miscellaneous French writer, born at Paris in 1750, was brought up to the bar. He was librarian to the Mazarin College, but towards the close of his life retired into the country, and died at Montrouge in 1805. His principal works are, *Livre échappé au Déluge*, a collection of Psalms, which was the pretext of his dismissal from his office of librarian to the Mazarin College; *Prophetie d'Arlemek*; *Fragmens d'un Poeme Moral sur Dieu, ou la Nouvelle Lucrece*; *Tombeau de J. J. Rousseau*; *De Bergeries*; *Le Temple de l'Hymen*; *Bibliothèque des Amans*; *Le Livre de tous les Ages*; *L'Age d'Or*; *Paris, et la Province*; *ou Choix des plus beaux Monumens d'Architecture en France*; *Le Pantheon, ou les Figures de la Fable avec leurs Histoires*; *Almanac des Honnêtes Gens*, a publication for which he was imprisoned; *Dictionnaire d'Amour*; *Tableau de la Fable*; *Costumes civils actuels de tous les Peuples*; *Recueil des Poetes moralistes Français*; *Catechisme du Curé Meslier*; *Dictionnaire des Athées*; *Voyage de Pythagore*; *Decades du Cultivateur*; &c.

MAREMMA J.A., a long tract of country in Italy, extending from Leghorn on the north along the south-west coast as far as Terracina on the Neapolitan frontier. It is marshy, and much affected with the malaria.

MARENGO, a *mare* now belonging to the Sardinian states, if the Milanese, on the Bor-

mida. It stands at the entrance of a great plain, on which was fought, on the 14th of June 1800, the important battle of Marengo, between the French under the command of Buonaparte and the Austrians under general Melus. The battle was contested until noon, when the French began to retreat, and continued till six P. M. At this hour they were joined by Dessaix, when they rallied, and drove the Austrians from their position with great slaughter. Dessaix was mortally wounded, but an armistice followed, which terminated in the peace of Luneville. Population 2200. Five miles south-east of Alessandria, and fifty east by south of Turin.

MARENNE, a trading town of France, in the department of the Lower Charente, at the mouth of the Seudre. It carries on a brisk traffic in brandy, wine, and salt. Population 4700. Twenty-five miles south of Rochelle.

MAREOTIS, a lake of Egypt, to the south of Alexandria, running parallel to the Mediterranean, on a narrow strip of land near which that city stands. On the east it is separated by a neck of land equally narrow from the lake of Aboukir; and through this space flows the canal of Alexandria, which the British army, during the siege of that city, united with the lake so as to cause the waters of the one to flow into the other, and prevent them from reaching Alexandria. This cut was open at a recent period.

MARESCHAL, *n.s.* Fr. *mareschal*. Derived by Junius from mare, the female of a horse. But see MARSHAL. A chief commander of an army.

O William, may thy arms advance,
That he may lose Dinant next year,

And so be *mareschal* of France. *Prior.*

MARGARET, countess of Richmond and Derby, the learned and pious mother of Henry VII., was born at Bletsoe, in Bedfordshire, in 1441; and was the sole heiress of John Beaufort duke of Somerset, grandson to John of Gaunt. Her mother was the heiress of lord Beauchamp of Powick. While very young she was solicited by the king for his half-brother Edmund earl of Richmond, to whom she gave her hand. Henry VII. was the sole fruit of this marriage, his father dying when he was but fifteen weeks old. Her second husband was Sir Henry Stafford, Knight, second son to the duke of Buckingham, by whom she had no issue. Soon after his death, in 1482, she married a third husband, Thomas lord Stanley, who was created earl of Derby by her son. He died in 1504 without issue, being then high constable of England. She died at Westminster in June 1509, aged sixty-nine, and was buried in Henry VII.'s chapel; on the south side of which was erected to her memory an altar tomb of black marble, with her statue of brass. Bishop Fisher, her confessor, says, 'she possessed almost all things that were commendable in a woman.' She understood the French language perfectly, and had some knowledge of the Latin. She was devout even to austerity, in humility romantic, and profuse in the encouragement of learning. She wrote, 1. The *Mirrore of Golde* for the sinful Soule; translated from the French, London, 4to., with cuts on vellum. 2. Translation of the

fourth book of Dr. Gerson's *Imitation* of our Saviour, 1504. 3. A *Letter to the King*, in Howard's collection. She also made the orders for great estates of ladies and noble women, for their precedence, and wearing of barbes at funerals, over the chin and under the same.

MARGARET, duchess of Newcastle, a lady famous for her voluminous writings, was born about the end of king James I.'s reign. She was the youngest sister of lord Lucas, and married the duke of Newcastle abroad, in 1645. On their return after the Restoration she wrote the life of her husband; with a great number of plays, poems, &c., amounting to about 12 vols. folio. She died in 1673.

MARGARET OF ANJOU, daughter of Regnier of Anjou, king of Naples, and wife of Henry VI., king of England; an ambitious, enterprising, courageous woman. Intrepid in the field, she signalled herself by heading her troops in several battles against the house of York; and if she had not been the authoress of her husband's misfortunes, by putting to death the duke of Gloucester his uncle, her name would have been immortalised for the fortitude, activity, and policy with which she supported the rights of her husband and son, till the fatal defeat of Tewksbury; which put an end to all her enterprises. She died at Anjou in 1482. See ENGLAND.

MARGARET (St.), a celebrated virgin, who is said to have suffered martyrdom at Antioch, A. D. 275. The ancient martyrologists make no mention of her name, and she did not become famous till the eleventh century. There is no more foundation for what is said concerning her relics and girdles, than for the stories which are told of her life. A festival, however, is still held in honor of her memory on the 20th of July. The orientals pay reverence to her by the name of Saint Pelagia, or Saint Marina, and the western church by that of Saint Geruma, or Saint Margaret.

MARGARITA, an island and government of Colombia, separate from that of Cumana, on whose shores it lies. It is dependant on Caraccas, and lies in N. lat. 10° 56', and in 64° and 65 W. long. It is sixteen marine leagues in its greatest length; six in its greatest breadth; in some parts only two or three leagues broad; and its surface is thirty-one square leagues.

It was first discovered by Columbus in 1498. The pearls found on the coasts of this and the neighbouring isle of Cubagua soon rendered it famous; and the fishery was carried on at the expense of vast numbers of Indians, who lost their lives here. The Dutch at last burnt the town and fort of this island.

The island is divided into two parts, which communicate with each other by a natural causeway, that is scarcely more than from eighty to 100 paces broad, and in some parts from ten to twelve feet only above the level of the sea. The mountain of Macanon, the most elevated part of the island, is above 2000 feet high according to Humboldt, who measured it trigonometrically, and is composed of micaceous schistus. It is an important point for navigators to make who go from Europe, or from North or South America,

to Cumana, Barcelona, and La Guayra, as they are obliged to sail between Margarita and the islet of Coche, to avoid running the risk of being carried to leeward by the currents.

The possession of Margarita is an object of some consequence: it forms the channel through which all vessels, coming from Europe or windward to Cumana, Barcelona, and La Guayra, must pass; a channel not navigable in its whole breadth; the rocky island Coche, between it and the continent, leaving only a narrow pass of two leagues, but which is seldom dangerous, owing to the general calmness that reigns in this part of the Caribbean Sea. It might become, under a system of free commerce, the general entrepôt of Cumana, Barcelona, Caraccas, Guayra, and all the cities of the interior.

Margarita has three ports. The most important is that of Pampatar, situate on the south-east coast. It is a large and fine basin, in which vessels are defended from winds and tempests. Its entrance is protected on one side by a fortress, and on the other by batteries. These are the principal fortifications of the island. Pueblo de la Mar another port, or, to speak more correctly, an open roadstead, is a place of little trade, and is situate at a league and a half westward of Pampatar. Pueblo del Norte is, as its name indicates, a village situate in the northern part of the island. A coral reef renders the entrance of this port difficult to mariners who are not accustomed to it. Two batteries defend its entrance against privateers. Near this port is a village inhabited only by fishermen.

Along the coast of Margarita the land is in general rocky and steep; but the interior is more fertile, and covered with groves. Its climate though very hot is wholesome; the greatest inconvenience experienced by the inhabitants being a want of good fresh water.

Assumption is the capital and the residence of the governor. It has two parish churches, and a convent of Recollets. The valleys of San Juan, Santa Margarita, and Los Robles, have each a village which bears their name.

Margarita had, in 1807, a population of 8000 whites, 5500 mixed blood, 1800 Indians, and about 900 Negroes; making a total of 16,200 persons. The island has only three rivulets, which, however, are sufficiently large to turn mills. Their waters are limpid. That of the little river which runs by the town of Assumption, and which in some places passes over a bed of amphibolic schistus, contains sulphureted iron, magnesia, &c. The inhabitants prefer drinking the turbid water from pouds.

The agriculture scarcely suffices for the maintenance of its inhabitants. Maize, cassava, and bananas, are their principal resources. The bananas are excellent, but very small, owing to the aridity of the soil and dryness of the climate. The inhabitants cultivate, in small proportions, and for their own consumption only, all the productions of the Antilles—the sugar-cane, coffee and cocoa trees. They rear a great many goats and sheep, which, though lean, give delicious milk, owing to the aromatic herbs on which they feed. They have all kinds of fowls at a very trifling price. Living is said to be still

cheaper at Margarita than at Cumana or Caraccas.

Fowls, turkeys, and all kinds of poultry, are exported to the continent by the lower classes; and the island is celebrated for its beautiful parrots and other curious birds. They fabricate cotton stockings, and hammocks of a very superior quality.

The fisheries produce the principal object of trade here: they are placed at the islet of Coche, which belongs to government, and the product is said to be immense. Two merchants of Margarita had the privilege of this fishery in 1807; and they carried it on at Coche. The men who were employed in it were Indians of Margarita. It was not freely, but by order of government, that those natives worked in the fishery at the scanty pay of a real (fivepence) per day, and bread of maize or cassava. They ate also as much fresh or salt fish as they chose. More than 300 Indians of both sexes and all ages were employed there in 1807. The salt works of Margarita are also important.

MARGARITE, *n. s.* Fr. *marguerite*; Latin *margarita*. A pearl.

The kyngdom of hevenes is lyk to a merchaunt that sechith gode *margaritis*, but whanne he hath founde so precious *margarite*, he wente and solde all thingis that he hadde and bought it. *Wiclif. Matt. 13.*

Silver is the second metal, and signifies purity; among the planets it holdeth with luna, among precious stones with the *margarite* or pearl.

Peachum on Blazoning.

MARGARITI, the ancient Gytanæ, a town of European Turkey, in Albania, situated about two miles from the sea coast. Population 6000.

MARGATE, a market town and sea-bathing place on the coast of Kent, in the parish of St. John in the liberties of Dover and Isle of Thanet, is seventy-two miles east from London. The town is seated on the ascent of two hills; that part of it which was originally the little fishing town, called St. John, being now the High Street. There was another detached village, lying in a valley called Lucas-Dane, but it is now also attached to the town by some handsome buildings. The principal improvements of Margate have taken place since 1787, when an act of parliament was obtained to rebuild the pier, a theatre was constructed, and the town underwent considerable improvements. After this, from the increase of company, new buildings became necessary, and almost a new town has sprung up to the southward of the old one. The pier having suffered greatly by storm in January, 1808, which swept away the bathing rooms, and part of the High Street, a sum of £5000 was granted by parliament for repairing the loss: the inhabitants, in 1810 and 1812, also obtained leave of parliament to increase the droits and pierage, in order to pay the interest of the sums borrowed for these improvements, and a new pier has since been completed at the expense of £90,000. On it there is a handsome raised and enclosed walk, which forms the fashionable promenade, for which the company pay 1d. per day. Steam packets are so largely employed in sailing daily to and from London, that the sailing vessels are superseded. This easy

and expeditious conveyance has much contributed to the support of the town: the packets on Saturday frequently bringing down 1000 persons. There are fourteen marble warm baths filled from the sea, which may be brought to any temperature. The church of St. John stands about half a mile from the lower end of the town, and is a large building of flint, rough cast, consisting of three long low aisles. At the west end of the north aisle is a square tower, with a low spire, containing six bells. It has many monuments of antiquity, with a good organ. Here are also meeting-houses for the Baptists and Wesleyans. Among the public buildings is Cecil Square, erected in 1769, consisting of very spacious houses, and commodious shops; Hawley Square in a contiguous field; the Union Crescent, opposite Cecil Square, is perhaps the most elegant among the new buildings. Northward of the town, on a spot called the Fort, which had formerly a battery, Neptune Square has been erected. On Hooper's Hill, opposite, are also various good buildings. The assembly room, belonging to Howe's London Royal Hotel, stands at the south corner of Cecil Square, and is eighty-seven feet long, and forty-three broad; it is adorned with busts of his late majesty, and the late duke of Cumberland; attached are corresponding tea-rooms, card-rooms, billiard-rooms, &c., and the house is one of the best conducted and largest taverns in the kingdom. The York Hotel, on the Marine Parade, is another excellent tavern. A general sea-bathing infirmary was opened in 1796, at Westbrook, under the patronage of the king, and projected by Dr. Lettsom. Persons are admitted during the season, after having been examined by the medical board, at the court-room of the London workhouse, and remain eight weeks, adults being provided with board at 5s. per week, and children at 2s. 6d. The libraries are in the first style of elegance. That situated at the north-west corner of Hawley Square is a new and fine structure; a second is on the north-east side of Cecil Square, and the third at the lower end of High Street, commanding a most delightful prospect of the sea. Attached to the Prospect Hotel, on Hooper's Hill, is a large bowling-green, fitted up for tea-parties. Draper's Hospital, standing on a rising ground, erected in 1700, by a quaker, has nine dwellings, and the generality of the pensioners are of that community. In the middle of the building is a meeting-house. About a mile and a half from the town stands Dandelion, where are the remains of an ancient fortification, of great strength. Between this place and Draper's Hospital is the mansion of Salmstone, formerly belonging to Christ Church, Canterbury; the lessee of which is bound to pay several charities, amongst others a dish of peas to every poor person who claims them between the 3d of May and 24th of June. The mayor of Dover appoints a deputy for Margate, but he is invested with no other power than that of constable. This appointment has been often opposed by the inhabitants. Market on Wednesday and Saturday, which is well supplied with all sorts of provisions. An act was passed in May, 1824, for lighting the town with

gas. To the ordinary number of inhabitants, about 8000, there are added in the season about 40,000 visitors, but the number is now diminishing.

MARGE, *n. s.*

MARGENT,

MA'RGIN,

MA'GINAL, *adj.*

MAR'GINATED.

He drew his flaming sword, and struck

At him so fiercely, that the upper *margin*

Of his sevenfold shield away it took.

Faerie Queene.

We cannot better interpret the meaning of these words than pope Leo himself expoundeth them, whose speech concerning our Lord's ascension may serve instead of a *marginal* gloss.

Hooker.

As much love in rhyme,

As would be crammed up in a sheet of paper

Writ on both sides the leaf, *margin* and all.

Shakspeare.

An airy crowd came rushing where he stood,

Which filled the *margin* of the fatal flood.

Dryden.

All the advantage to be gathered from it is only from the evenness of its *margin*; the purpose will be as fully answered by keeping that under only.

Sharp's Surgeon.

Reconcile those two places, which both you and the *margins* of our bibles acknowledge to be parallel.

Hammond.

He knows in law, nor text, nor *margin*.

Swift.

What remarks you find worthy of your riper observation note with a *marginal* star, as being worthy of your second year's review.

Watts.

MAR'GRAVE, *n. s.* Teut. *marck* and *graff*, a title of sovereignty in Germany; in its original import, keeper of the marches or borders.

The reigning *margrave* of this principality (Ansbach) has a seat and a voice in the council of the princes of the empire, and is also co-summatary prince of the circle of Franconia.

Dr. A. Rees.

MARGUENAT (Anna Theresa de), marchioness of Courcelles, an elegant moral writer, was the only daughter of Stephen Marguenat lord of Courcelles. In 1666 she married Henry de Lambert, lieutenant-general of the army; and afterwards remained a widow with a son and a daughter, whom she educated with great care. Her house was a kind of academy, to which persons of distinguished abilities resorted. She died in Paris in 1733, aged eighty-six. Her works, which are written with much taste, judgment, and delicacy, are printed in 2 vols. The advices of a Mother to her Son and Daughter are particularly esteemed.

MARGUERITE, a small island of the Mediterranean belonging to France, and included in the department of Var. It is opposite to Antibes, and has a strong castle, where the 'man in the iron mask' was for some time confined. Long. 7° 3' E., lat. 43° 31' N.

MARIAMNE, the daughter of Alexandra, grand-daughter of Hyrcanus II., and the beloved wife of Herod the Great; who, however, murdered her and most of her relations. See HEROD.

MARIAN, or Ladrone Islands. See LADRONE.

MARIANA (John), a learned Spanish historian, born at Talavera, in the diocese of Toledo.

He entered among the Jesuits in 1554, at seventeen years of age; and became one of the most learned men of his time. He was a great divine, and profoundly versed in civil and ecclesiastical history. He taught in Rome, Sicily, Paris, and in Spain; and died at Toledo in 1624. His principal works are, 1. A History of Spain in thirty books; which he wrote first in Latin, and afterwards in Spanish. 2. Scholia, or short notes on the Bible. 3. A Treatise on the changes the specie has undergone in Spain; for which he was imprisoned by the Spanish minister. 4. A Treatise de rege et regis institutione, which was condemned by the parliament of Paris, to be burnt by the hangman, for his asserting that it is lawful to murder tyrants. 5. A work on the faults of the government of the society of Jesuits, which has been translated into Spanish, Latin, Italian, French, &c.

MARIA SANTA, a cape of the western extremity of the island of St. Domingo.—2. A cape which forms the south point of entrance into the La Plata, on the coast of Brasil.—3. An island near the coast of Brasil, in the province of Rio Janeiro, between the city of this name and Punta Negro.—4. An island on the coast of Chili, at the mouth of the entrance into Conception Bay. It is about four miles in length; and there are on it many wild horses and hogs. Lat. $37^{\circ} 10' S$.

MARIA'S ISLAND, an island of the southern ocean, lying off the east coast of Van Diemen's Land. It is penetrated by two deep bays, on opposite sides; that on the east side, called Oyster Bay, being both safe and capacious. Part of the east coast presents lofty granitic walls, rising from 300 to 400 feet perpendicularly, and penetrated by deep caverns, into which the sea rolls with great noise. On the opposite side the shore is flat, and here the navigator finds an immense quantity of sea-weed, which grows from the bottom of the sea, to the height of 250 or 300 feet, and covers the surface. Seals and zoophytes abound on the shore. The inhabitants, who wear only a slight covering of skin thrown over their shoulders, are of a lively but treacherous disposition. This island was first discovered by Tasman in 1642. Long. $143^{\circ} 29' E$, lat. $42^{\circ} 42' S$.

MARIA'S ISLAND is also the name of three considerable islands of the North Pacific Ocean. The largest and most northern is thirteen miles long, its high part toward the south, whence it gradually descends, and terminates in a long low point. A small low detached islet, and a remarkably steep white cliffy rock, lie off this point, whose shores are also composed, particularly on its south-west side, of steep white rocky cliffs: the same substance seemed to be its principal component part. The next in size, Prince George's island, is about twenty-four miles; and the third, or southernmost, about nine miles in circuit. Between Prince George's and the north-westernmost island, is a passage about six miles wide, with soundings of from twenty to forty fathoms, sandy bottom. These islands were visited by Vancouver in a boat, who found the soil on Prince George's Island to be of a sandy nature, on which the most valuable production

was *lignum vitæ*; besides which was an almost impenetrable thicket, and some plants of the orange and lemon tribe, the whole growing close to the water side. Some of the *lignum vitæ* which was cut close to the beach, and brought on board, worked up full eight inches diameter at heart; was very ponderous, and of a close black grain. Many birds were seen; and turtle tracks, but no quadrupeds. A variety of fish, common to the tropical regions, were also in great numbers about the shores, particularly some very daring sharks, but no traces of human beings. Long. of anchoring place $253^{\circ} 54' E$, lat. $21^{\circ} 28' N$.

MARIAS LAS TRES, on the shore of Guadalupe, Mexico. The three Maria Islands lie north of St. Blas. The middle, named St. George, is nine miles long, and has good anchorage on the east; St. John's, the northernmost, is thirteen miles long. These islands are elevated, covered with wood, particularly *lignum vitæ*. Between them and the main are some small islands named Isabellas. The south cape of the easternmost of the Tres Marias is in lat. $21^{\circ} 16' N$, long. $106^{\circ} 17' W$.

MARIENBERG, a mining town of Saxony. Silver, iron, vitriol, and tin, are still wrought, though considerably declined. Its situation is at the height of nearly 2000 feet. Population 2600: thirty-five miles south-west of Dresden.

MARIENBURG, a town of West Prussia, in the government of Dantzic, on the river Nogat. It is surrounded by a rampart; but on the outside are two suburbs and its castle, formerly the residence of the grand master of the Teutonic knights. Here are some small manufactures of woollen, cotton, linen, and leather, and extensive breweries and distilleries. There is also a brisk traffic in corn, timber, fish, quills, and hogs' bristles. In one of the suburbs are the Muhlengraben, or town mills, on the principle of the old German hydraulics. It contains 7200 inhabitants, Lutherans, and Catholics: twenty-six miles S. S. E. of Dantzic.

MARIENWERDEL, one of the two modern governments of West Prussia, consists of a long tract of country, lying to the north of Poland, south of Pomerania, and the government of Dantzic. Its area is 6800 square miles, and population 302,000. It is divided into the circles of

Marienwerder,	Michelau,	Deutsche Kron,
Calm,	Konitz,	Neuenberg,
Thorn,	Kammin,	Christburg.

See PRUSSIA, WEST.

MARIENWERDER, a neat town of West Prussia, the capital of a government and circle, stands on an eminence on the Nogat, about three miles from the Vistula. It has four suburbs, and contains 5100 inhabitants. It has some manufactures of woollens, hats, soap, and leather, but its breweries and distilleries are more considerable: forty-three miles south of Dantzic, and ninety south-west of Königsberg.

MARIENZELL, a town of the Austrian States, in Upper Styria, near the borders of Austria Proper. It is insignificant in size, but of some note as the resort of pilgrims. The crowds who come to a chapel here are immense,

being said to amount to 80,000 persons annually, and the offerings made were formerly of great value. Joseph II. suppressed the institution, and seized the property: still the number of pilgrims who resort thither is great.

MARIGALANTE, an island of the West Indies, one of the least of the Caribbees, twelve miles south of Guadalupe. The soil, produce, and climate, are much the same as the other Caribbees. Columbus discovered it in his second American voyage in 1483, and called it by the name of his ship, *Maria Galanta*, or *Gallant Mary*. It is about six leagues long, and between three and four broad. Viewed at a distance, from on board a ship, it appears like a floating island, because, as it is for the most part flat, the trees seem to swim; but a nearer prospect shows it to be intersected by some rising grounds, which give a fine variety to the landscape. The French settled here in 1647; and it was taken by the English in 1691, but the French soon got possession of it again. It was retaken by the British in 1759, but restored at the peace of 1763. Once more taken by us in the late war, it was restored to France at the general peace. It was thought, on its first discovery, to want water; but a running stream has been discovered, on the banks of which are some wealthy planters, and excellent plantations of sugar, indigo, and tobacco. A little village in a small bay is the capital of the island, and here the commandant resides. The whole island is very capable of improvement; the soil being almost all equally good, and the land rising nowhere too high. The coast affords many little bays, and safe anchorage and shelter to ships. Long. $61^{\circ} 15' W.$, lat. $16^{\circ} 32' N.$ The official value of the imports in 1810 was £7832.

MARIGOLD, *n.s.* Mary and gold. Latin *caltha*. A yellow flower, devoted, I suppose, says Dr. Johnson, to the virgin.

Your circle will teach you to draw truly all spherical bodies. The most of flowers: as, the rose and *marigold*. *Peacham.*

The *marigold*, whose courtier's face

Echoes the sun, and doth unlace

Her at his rise. *Cleaveland.*

Fair is the *marigold*, for pottage meet. *Gay.*

The *marigold* hath a radiated discous flower; the petals of them are, for the most part, crenated, the seeds crooked and rough; those which are uppermost long, and those within short; the leaves are long, intire, and for the most part succulent. *Miller.*

MARIGOLD. See **CALENDULA**.

MARIGOLD, AFRICAN. See **TAGETIS**.

MARIGOLD, CORN. See **CHRYSANTHEMUM**.

MARINATE, *v.a.* Fr. *mariner*. To salt fish, and then preserve them in oil or vinegar.

Why am I styled a cook, if I'm so loath

To *marinate* my fish, or season broth? *King's Cook.*

MARINE, *adj. & n.s.* } Lat. *marinus*; Fr.

MARINER, *n.s.* } *marin, marinic*. Of or belonging to the sea; a sea soldier: mariner is a seaman or soldier.

The merry *mariners* unto his word

Soon hearkened, and her painted boat straightway

Turned to the shore. *Fuerie Queene.*

The king was desirous that the ordinances of Eng-

land and France, touching *marine* affairs, might be reduced into one form.

The stubbornest Israelite and the most godless *mariner* could call upon God in his trouble. *Hayward.*

We oft deceive ourselves, as did that *mariner* who, mistaking them for precious stones, brought home his ship fraught with common pebbles from the Indies. *Bp. Hall.*

His busy *mariners* he hates,

His shattered sails with rigging to restore. *Clanville.*

No longer Circe could her flame disguise,

But to the suppliant God *marine* replies. *Dryden.*

Nearchus who commanded Alexander's fleet, and Onesicrates his intendant-general of *marine*, have both left relations of the state of the Indies at that time. *Garth.*

What *mariner* is not afraid,

To venture in a ship decayed? *Arbutnot.*

MARINE is a general name for the navy of a kingdom or state; the whole economy of naval affairs; and whatever respects the building, rigging, arming, equipping, navigating, and fighting ships. It comprehends also the government of naval armaments, and the state of all the persons employed therein, whether civil or military. The history of the marine affairs of any one state is a very comprehensive subject. See **NAVY**.

MARINE ACID, or **MURIATIC ACID**. See **MURIATIC ACID**, and **CHEMISTRY**.

MARINE CHAIR, a machine invented by Mr. Irwin, for viewing the satellites of Jupiter at sea, and of course determining the longitude by their eclipses. An account of it is given in the *Journal Estranger* for March 1760. An account of its accuracy was published in 1761 by M. de l'Isle, astronomer in the Imperial academy of Petersburg: but, notwithstanding the encomiums bestowed upon it by this gentleman, it has never come into general use.

MARINE DISCIPLINE is the training up soldiers for sea-service, in such exercises as the various positions of the firelock and body, and teaching them every manœuvre that can be performed on board ships of war at sea.

MARINE FORCES, or **MARINES**, a body of soldiers raised for the sea-service, and trained to fight either in a naval engagement, or in an action a-shore. The great service of this useful corps was manifested frequently in the course of the German war, particularly at the siege of Bellisle, where they acquired a great character, although lately raised, and hardly exercised in military discipline.

The first authentic account of a regiment of this description appears in the *Army List* of 1684, and from the return of the general review on Putney Heath, on the 1st of October in that year: but neither the exact era of its establishment, or that of the other maritime forces, is clearly ascertained. The return above-mentioned runs thus: 'The lord high admiral of England, his royal highness the duke of York and Albany's Maritime regiment of foot, commanded by the Hon. Sir Charles Littleton, called also the Admiral's Regiment.' This regiment consisted of twelve companies, without any grenadiers; the officers of which were, one colonel, one lieutenant-

colonel, one major, twelve captains, twelve lieutenants, twelve ensigns, one adjutant, one quartermaster, one surgeon, and one surgeon's-mate.

They had yellow coats lined with red, and their colors were, a red cross with rays of the sun issuing from each of its angles. They stood the third in seniority in the line of that day; and it may be presumed from its subsequent reduction, that a step was obtained in it by the 4th, then the regiment of Holland, commanded by John, the second lord Mulgrave, and now called the Old Buffs.

Between 1687 and 1698 there were several maritime regiments raised for the purposes, and under the regulations, before mentioned. They were colonels Mordaunt, Colt, Seymour, and Brudenell's; also Sir Cloudesley Shovel's, my lord Torrington's, and the marquis of Carmarthen's; all of which were disbanded during the currency of 1697 and 1698.

In the early part of 1756 the French had collected immense forces upon their coasts, with the avowed object of invading England; consequently measures of precaution and defence were adopted by a regular and annual increase of seamen and marines. The following are the numbers of marine corps voted by parliament for the service, from 1756 to 1763, both years inclusive:—

Year.	Marine Corps.
For 1756	9,138
1757	11,419
1758	14,845
1759	14,845
1760	18,355
1762	19,061
1763	4,287

The naval establishment for the year 1762 consisted of 70,000 seamen, including the 19,061, or thirty-six companies of marine corps.

The merits of the latter became conspicuous by the most zealous and spirited services, on either element; but it was not until the year 1771 that the corps of marines felt the fostering influence of a steady patron in earl Sandwich, then at the head of the admiralty. From him originated the colonels commandant of divisions, and many of those interior regulations, which, for their economy and wisdom, do honor to the establishment. His lordship, by a memorial to the throne, soon after his accession to power, obtained an order in council to enlarge the number of field officers. By a train of considerate attentions the corps was placed on a respectable footing; its discipline became much improved; and his lordship soon saw those objects of his tender care surpassed by no troops in the world, for subordination, intrepidity, and cool valor.

From the era of 1764 may be dated the fatal American revolution.

The total number of marine corps voted by parliament for the service, from 1778 to 1782, both years inclusive, were:—

Year.	Marine Corps.
For 1778	11,000
1779	17,389
1780	18,779
1781	20,317
1782	21,305

At the close of the last year a general peace was ratified between America and Great Britain, and all her contending powers.

Towards the close of the year 1792 a small addition was granted to the corps of marines, and a much greater took place the following year, in consequence of the intermeddling policy of France, and the war which succeeded it.

The narrow views that had influenced so great a reduction, at the peace of 1782, were bitterly felt at the commencement of hostilities. It is to the faithful marine soldier, who knows not the meaning of desertion, that the nation, under such sudden emergencies, is often obliged to have recourse in equipping, as well as manning her fleets; for it is not in human nature to place confidence in that man who has been constrained to serve, and who recognises neither a voluntary will nor a sacred obligation to discharge his allotted duties.

Several additional companies were now deemed absolutely necessary to the marine corps. The following are the numbers voted by parliament for the service, from 1794 to 1801, both years inclusive:—

Year.	Marine Corps.
For 1794	12,115
1795	15,000
1796	18,000
1798	20,000
1800	20,000
1801	30,000

The latter number was kept up till March 1802. On the 29th of April following, his majesty, in order to mark his approbation of the very meritorious and loyal conduct of the marine corps, during the late war, was graciously pleased to direct that, in future, the corps shall be styled 'The Royal Marines.'

Besides the many useful reforms adopted by earl St. Vincent, for the internal economy of the navy, his lordship turned his attention to the royal marine corps. On the 18th of March, 1803, a new code of instructions was published for their regulation when on shore, which vests in the four senior captains of each division the management and superintendence of many concerns that had formerly been placed under separate departments.

In the early part of 1803 we again took up arms in defence of our dearest birthrights; when the lords of the admiralty judged it necessary to augment the royal marine corps to the war establishment; it having been reduced, during the short peace of 1802, to 100 companies, each containing 100 men, exclusive of officers.

In August, 1804, three companies of artillery (being one to each division) were ordered to be formed for the purpose of serving afloat, with additional pay for officers and men. The officers belonging to this small corps were not separated from the general marine list, neither were they promoted, except in their turn with the others. On attaining the rank of full major, they lost their appointment in the artillery.

By a warrant from the admiralty, dated the 15th of August 1805, another division was established, called the 4th, or Woolwich division,

consisting of forty-one companies, including one of artillery. It had the same number of field officers, pay captains, &c., as the other divisions.

Few alterations of material consequence took place from that period to the end of the war, except that, during the administration of lord Mulgrave, four additional colonel commandants on second were appointed, one to each division, making the whole number of second commandants eight: and forage was allowed for one horse for lieutenant-colonels, majors, and adjutants.

The entire establishment of royal marines in January 1813 was 32,668; including ten boys to each company, or 1830.

THE COMPLEMENT OF ROYAL MARINES IN EACH RATE.

Rates.	Captains.	1st Lieuts.	2nd. Lieuts.	Serjeants.	Corporals.	Drummers.	Privates.	Total.
First Rate, 100 guns if a flag	1	1	2	4	4	2	156	170
Do. without a flag	1	—	3	4	4	2	156	170
Second Rate, 98	1	—	3	3	3	2	138	150
Third Rate, 80	1	—	2	3	3	2	130	141
Ditto, 74	1	—	2	3	2	2	115	125
Ditto, 64	1	—	2	2	2	1	82	90
Fourth Rate, 50	1	—	2	2	2	1	52	60
Ditto, 44	0	1	1	2	2	1	47	54
Fifth Rate, 38	0	1	1	2	2	1	41	48
Ditto, 32	0	1	0	1	1	1	38	42
Sixth Rate, 28	0	1	0	1	1	1	27	31
Ditto, 20	0	1	0	1	1	1	26	30
Sloops	0	0	0	1	1	0	18	20
Gun-brigs	0	0	0	1	1	0	13	15

MARINE INSURANCE. The laws relating to marine insurance comprise a very important branch of the commercial code, and especially of that part which respects foreign commerce. Marine transactions constitute the most material department of insurance, being, indeed, almost co-extensive with the vast trade carried on by the shipping of this country, either along the coasts of Great Britain or to parts beyond the sea. The object of these insurances, by dividing the risk, is to prevent the ruinous loss which would fall upon the individual owners of the property insured. The effect is highly beneficial to trade in general; for by judicious management those fluctuations in the property of individuals are avoided which must necessarily take place, if each incurred the risk of the whole adventure; and, though the profit is diminished of a successful voyage, the larger portion is absolutely secured; and, in case of loss, the amount, being divided amongst a considerable number of persons, falls with comparative lightness on each. By this means, also, commerce is greatly extended, since, by protecting the capital embarked, the trader is encouraged to enlarge and continue his shipments.

The persons who engage to pay the loss are called the underwriters or insurers. Those whose

property is secured are termed the assured or insured. The contract by which the insurance is made is called the policy. The other terms used in these transactions will be explained successively under their proper heads in the course of the present article.

The law relating to the parties who may enter into these contracts has of late been very materially altered. As it stood prior to the year 1824, namely, by the 6 Geo. I. c. 18, charters were granted to the Royal Exchange Insurance Company, and the London Assurance Company; and the statute prohibited any other society or partnership from underwriting policies of insurance. Consequently insurances were effected either with these companies or with individual underwriters, and all others were void. Even a company of ship owners, engaging to insure each others ships, was held to be illegal. The effect of this statute was to grant a monopoly in marine insurances to these companies, the policy, as well as justice of which, like all other monopolies, is very questionable. The evil, however, was much diminished, and a considerable degree of competition introduced, by the extensive business transacted at Lloyd's Coffee House, by individual underwriters, to whom the insurance brokers and other connexions introduced a vast mass of insurances.

Now by the 5 Geo. IV. c. 114, the previous statute is so far repealed as to allow any other corporation, or any persons in partnership, to grant policies of insurance on ships or goods at sea, and also to make contracts of bottomry.

The subjects of marine insurance are usually ships, cargoes, freight, and sometimes commissions. Bottomry and respondentia, as well as expected profits and bounties may also be insured; but they must be specifically named in the policy.

Property of some kinds is not insurable, for the particulars of which see sect. V.

In proceeding to state the principal details of the subject, we shall consider the nature of the contract of insurance—the losses total and partial for which the insurers are liable—the procedure to enforce payment—and, lastly, insurances which are void and illegal.

SECT. I.—OF THE NATURE OF THE CONTRACT OF INSURANCE.

1. *Of the policy, its conditions, and construction.*—It is necessary, by 28 Geo. III. c. 56, that the name or firm of one or more of the parties interested in the insurance should be inserted in the policy, or the name or firm of the consignor or consignee, or of the person receiving the order for or effecting the insurance; or of the person giving directions to effect the same. Policies without some one of these requisites are void.

The names of the ship and master must also be stated, unless the insurance be general: that is, that the goods may be shipped on board of 'any ship or ships,' which should accordingly be so expressed in the contract. The description of the property insured must be specified, whether on the ship, goods, or merchandise. A policy on goods does not include goods landed on deck, the captain's clothes, or the ship's provisions.

But a policy on the ship and furniture includes the provisions for the use of the crew. It is also necessary to state the name of the place at which the goods are to be laden, and to which they are bound, and the ports or places at which the vessel may touch or stay. Next, it is essential to specify the time when the risk commences and when it is to end. Again, the various perils against which the underwriter insures are to be enumerated, namely, perils of the sea, fire, enemies, &c., and all other perils. In the next place, the premium, or consideration for the risk, is expressed to be received at the time of underwriting, though, according to the usage of trade, the broker who effects the policy keeps an account with the underwriter in which he enters the premium. The date of the execution of the policy is the next requisite. Lastly, the policy must be duly stamped, according to the amount of the sum insured.

The conditions comprised in a policy consist of the warranty that a certain thing shall happen or be done, otherwise there is no valid contract. Thus it may be engaged that the ship shall be safe on a certain day. There is a material distinction between a representation and a warranty. The warranty must be expressed in the policy. A detached paper operates only as a representation; and a representation made without fraud, if not false in a material point, does not vitiate the contract; whilst a warranty must be strictly fulfilled, whether material or not.

The general cases of warranty are, the time of the vessel's sailing; the sailing with convoy; the neutrality of the property.

(1.) Upon a warranty to sail on a particular day, the insurer is discharged if the vessel sails subsequently; and the effect is the same if the condition be to sail after a certain time and she sails previously. It is not yet decided, but it seems, that Gravesend is the limit of the port of London, from which the departure must take place on the day stipulated. It is there that vessels receive their final clearance by the custom house regulations.

(2.) A 'convoy' means a naval force under the command of the person whom government or any one authorised by them may appoint. A departure from Spithead with convoy is held within the meaning of a warranty from the port of London. The convoy must continue throughout the voyage, though the words in the contract are 'depart or sail with convoy only.' An unforeseen separation, however, from the convoy does not exempt the insurer; and, even if the vessel insured be entirely prevented by tempestuous weather from joining the convoy, still the insurance is valid.

(3.) The condition of neutral property is very strictly enforced. If not fulfilled, the contract is void ab initio for fraud, because, as the fact must be known at the time of the insurance, the misrepresentation is a deliberate falsehood. If, however, the property be neutral when the risk commences, the underwriter takes upon him the chance of war during the voyage.

A policy, being a contract of indemnity, is construed as nearly as possible according to the

intention of the parties, and not according to the strict meaning of the words; and the usage of trade is generally the rule by which such questions are guided. According to the authority of lord Mansfield, 'the insurer, at the time of underwriting, has under his consideration the nature of the voyage, and the usual manner of doing it; and what is usually done by such a ship, with such a cargo, in such a voyage, is understood to be referred to by every policy.' And on another occasion the same learned judge observed, that 'every underwriter is presumed to be acquainted with the practice of the trade he insures; and, if he does not know it, he ought to inform himself.' Still these contracts are construed by the same rules as other instruments, unless, by the known usage of trade, certain words have acquired a peculiar sense, distinct from the ordinary and popular sense.

1. *Of the commencement of the risk.*—When an insurance is 'at and from' any place, it protects the vessel not only during her preparation for the voyage, but from her first arrival.

An insurance from a port commences when the ship breaks ground; and if it set sail, and be driven back and lost in the port, the underwriters are liable.

An insurance on freight commences when the goods are put on board.

The risk on goods does not terminate in general till they are landed. If sent on shore by the long-boat they are protected in their transit; but if removed to another vessel, or sent on board a lighter, they are no longer at the risk of the underwriter. When the words in the policy are 'till moored twenty-four hours in safety,' the insurance of course expires with the period specified.

2. *Of the assurances and double assurances.*—By the 19 Geo. II., c. 37, re-assurances are declared unlawful, unless the assurer or underwriter should be insolvent, become a bankrupt, or die; in either of which cases such assurer, his executors, administrators, or assigns, may make re-assurance to the amount before by him assured, expressing in the policy that it is a re-assurance, and the statute extends to re-assurances on foreign ships previously insured by foreign underwriters.

3. *Double insurances* of the same sum upon the same property, are not void, but considered as an increase of the security; yet only one satisfaction, to the amount of the real loss, can be recovered. The assured may recover against which set of underwriters he chooses, and the set which pays the loss may call upon the others to contribute in due proportion. Different persons, however, may insure their several interests in the same property, and each to the whole value of his interest; as the master for wages, the owner for freight; one person for goods, and another for bottomry, &c.

It is said in the *Encyclopædia Britannica* (but we do not find the authority on which the statement rests), that if there be several policies on the same subject of different dates, the earliest one is valid, and the others must be vacated, and if they be of the same date they must be vacated in equal proportions.

In general, when a loss occurs, the actual value, at prime cost, of the property must be proved; but the parties may provide otherwise by what is termed a 'valued policy,' the effect of which is the same as if the value were admitted at the trial.

SECT. II.—OF TOTAL LOSSES.

Total losses may happen by capture, by barratry, by detention, or by the general perils of the

1. *By capture*, that is, when the ships or goods of one country are taken by another in a state of public war, and they are considered as lost, though not condemned or carried to any port or fleet of the enemy, and the underwriter must pay the loss. If the vessel be retaken, the owner may recover the salvage which he has paid; and, if an English ship retake the vessel, the owner is entitled, on payment of salvage, to restitution. If the loss be paid, the underwriter stands in the place of the assured, and is equally entitled to restitution. The right of the original owner, upon re-capture, continues for ever, upon paying from one-eighth to half the value to the re-captors, according to the time during which it has been in possession of the enemy. See *Salvage*, Sect. III.

2. *By barratry*, which is defined any act of the master or mariners, of a criminal nature, or which is grossly negligent, tending to their own benefit, to the prejudice of the owners of the ship, and without their consent or privity. It is barratry in the master to smuggle on his own account, and so also, perhaps, is the breach of an embargo, unless the act be done for the benefit of his owners. It is not barratry if the act of the captain be with the knowledge of the owners of the ship, though without that of the owner of the goods. If the master be also the owner, he cannot be guilty of barratry: the crime can only be committed against the owner of the ship. The moment the ship is carried from the proper track, with an evil intent, barratry is committed. If the owner of a ship freight it for a specific voyage, the freighter is considered as owner pro hac vice; and it is barratry if the master act criminally without his privity, though with the knowledge of the original owner.

3. *By detention*, or, as expressed in the policy, 'damages arising from the arrests, restraints, and detentions of kings, princes, or people.' Embargoes by the authority of a state are included in this provision, though it be a neutral state. Detention of a neutral ship for the purposes of search is within the policy, and the underwriter is liable to the expenses. For detention on account of non-payment of customs, the insurer is not liable. Particular ordinances, not a part of the general law of nations, under which a detention occurs, form a risk within the policy. It is not decided, though it is probable, that a detention by the state to which the ship belongs is included in the risk. The owner must abandon to the underwriter all claim to the property insured, before he can recover a loss for detention. If a seizure be made for transgressing the laws of a foreign country, the underwriters are not liable for the detention.

4. *By perils of the sea*, that is to say, by accidents happening by the force of wind or waves; by thunder and lightning, by driving against rocks, or by the stranding of the ship, or any other violence that human prudence could not foresee, nor human strength resist. Losses occasioned by these means fall upon the underwriters. Amongst the exceptions to this general rule, may be mentioned the following:—The captain of a slave-ship missed the island for which he was bound, and, water being deficient, some of the slaves were thrown overboard to preserve the rest. It was held that the *mistake* of the captain was not a peril of the sea. So the death of slaves by failure of provision, occasioned by extraordinary delay from bad weather, is not a loss within the policy.

A ship which is never heard of after her departure, shall be presumed to have perished at sea. According to the usage of merchants, a vessel is deemed lost if not heard of within six months after departure for any port of Europe, or within twelve if for a greater distance. If the vessel arrives, the underwriter may recover back the money paid by him.

SECT. III.—OF PARTIAL LOSSES.

Partial losses consist of damages which the ship may have sustained from some of the perils enumerated in the policy, or which the cargo may have suffered from storm &c., although the whole or greater part may arrive in port. According to the terms of the policies used in London, the underwriters are liable only when the loss amounts to three per cent., unless the claim be a general average or contribution to a general loss. For the partial damage, the underwriter must pay in proportion to the prime cost. The rule of calculation is the difference between the gross and not the nett proceeds. The underwriter is not liable to fluctuations in the market or to charges after the arrival at the port of destination. Where the property is of various kinds, an account must be taken of the value of the whole, and the insurers are liable for the due proportion of the amount of the goods lost.

The underwriters by express stipulation usually exempt themselves from any partial loss to perishable commodities, as corn, fish, salt, fruit, flour, or seed, unless it arise by way of general average or in consequence of standing. The two insurance companies do not make the latter exceptions. It has been determined that so long as these commodities specifically remain, though wholly unfit for use, the loss shall not be deemed total so as to charge the insurers.

Of averages.—Small or petty average consists of such charges as the master is obliged to pay, according to custom, for the benefit of the ship and cargo, as pilotage, beaconage, &c. These charges do not fall upon the underwriter.

General average arises when goods are thrown overboard in a storm to lighten the ship, and the owners of the ship and goods saved are to contribute to those whose goods have been ejected. To render the destruction legal, that which is condemned must be 1. in consequence of a voluntary deliberate concurrence of the master and men. 2. The ship must be in actual

distress and the sacrifice necessary. 3. The saving the ship and cargo must be owing to the means used with that view. If the ship, being once preserved by such means, be afterwards lost, the property, if any, saved from the second accident, must contribute to the loss occasioned by the former.

Diamonds and jewels must contribute according to their value, if they form part of the cargo. But jewels belonging to the person, wearing apparel, and ship provisions, are not liable to contribute. Nor are sailors' wages, or bottomry, or respondentia bonds, liable.

The calculation of the average is thus made: taking the value of the whole ship, freight, and cargo, if no jettison (or throwing over) had taken place, then the ship, freight, and cargo, are to bear an equal and proportionable part of the loss.

Of salvage, which is an allowance for saving a ship or goods from the perils of the sea, fire, or enemies. By the law of England reasonable salvage, to be ascertained by three justices of the peace, shall be allowed to those who save the ship or any of the goods.

On re-capture the salvage is regulated by act of parliament. If retaken by one of his majesty's ships the amount is one-eighth of the value. To a privateer, when the ship has been in possession of the enemy twenty-four hours, also one-eighth; if above twenty-four and less than forty-eight hours one-fifth; if above forty-eight, and under ninety-six hours, one-third; and if above ninety-six hours, a moiety or half part. If the ship retaken has been fitted out by the enemy as a ship of war, the salvage in all cases is a moiety.

The wearing apparel of the master and seamen is excepted from the allowance of salvage.

Of abandonment.—The property insured, or the residue of it, must be abandoned to the underwriter before a total loss can be claimed. The underwriter, having discharged his liability, stands in the place of the assured, and is entitled to the ship or goods, if not totally lost or afterwards restored by re-capture.

The abandonment must be made within a reasonable time after the receipt of the intelligence which justifies it, otherwise the right is waived and a total loss cannot be recovered. It has been held that notice given five days after information received of the loss was too late. Where the salvage is high, and the object of the voyage defeated, the assured may abandon. But a loss of voyage by perils of the sea is not a ground of abandonment where the cargo is in safety and not of a perishable nature.

Of returning the premium.—It is not clearly settled whether the assured be entitled to a return of premium in case the insurance be void for fraud. Where the insurance is declared illegal by statute, it seems the premium cannot be recovered, nor where the fraud is of a gross nature; but if the fact or circumstance which vitiates the policy, though termed in strictness of law a 'fraud,' a mistake, or an act not wilful the premium ought, it appears, to be returned. Insurance may be classed into void and illegal. —In the latter no premium can be reclaimed.

In the former the right depends upon the question whether the transaction were *bonâ* or *mala fide*.

If the value of the property be less than the sum insured, the assured may claim a return of premium in proportion to the excess.

The underwriters are entitled to retain half per cent. for their trouble when the policy is vacated.

SECT. III.—OF THE PROCEDURE TO ENFORCE PAYMENT OF LOSSES.

There was formerly a particular court for the trial of insurance causes in a summary way. The judge of the admiralty, the recorder of London, two doctors of the civil law, two common lawyers, and eight merchants, constituted the court, and an appeal was allowed to the court of chancery. These questions are, however, now decided like all others by a jury in the courts of common law. Those of equity have no jurisdiction, the demand being clearly a demand at law.

The policies of the Royal Exchange, and London Assurance companies are under seal. The actions therefore must be in debt or covenant. Against other underwriters, who merely sign the policy, the action is *indebitatus assumpsit*.

By a regulation introduced by lord Mansfield, called a consolidation rule, all the actions which are brought on the same policy against the individual underwriters, except one, may be stayed, by which great expense is saved. The underwriters, in return for this advantage, engage not to file any bill in equity or bring any writ of error for delay. The underwriters are also enabled to pay into court so much money as they deem proper, and if the assured does not recover a larger sum he is liable to the costs of the defendant.

The form of the pleadings, in such actions, it is unnecessary to state in a work of this nature. Of the evidence, however, a few particulars may not be inappropriate. The assured must prove his interest in the property insured by the usual documents, which consist of bills of sale of the ship, and of bills of parcels, and bills of lading of the cargo. In a 'valued' policy it is only necessary to prove that the goods were on board. It is then open to the defendant to show that the interest was only colorable or the goods greatly overvalued. The next point is that the voyage insured has been performed, so far as it extended, according to the terms of the policy. The proof of the loss must be in exact conformity to the way in which it is alleged in the pleadings to have taken place. The sentences of foreign courts of admiralty are frequently received as evidence. These must be properly authenticated; and if they have issued from a competent tribunal, and appear complete in themselves, the courts here will not receive evidence to disturb the decision. The *coquet*, which is a document issued by the custom house, should be produced to show that the goods were actually shipped. The evidence of a vessel having sailed with convoy is the production of the sailing orders which are given to the master.

SECT. IV.—OF VOID INSURANCES.

1. *Of fraud by misrepresentation and concealment.*—Both parties are bound to disclose the true state of the circumstances within their knowledge so far as they enhance the risk. The assured must state the accidents that have befallen the vessel. The underwriter, if he knows that it has safely arrived, must disclose the fact. Frauds are divided into 1. the *allegatio falsi*; 2. the *suppressio viri*; and 3. misrepresentation, which though not wilful yet if in a material point equally vitiates the insurance.

Of the first kind are representations that the property insured belongs to a neutral when in fact it belongs to an enemy.

Of the second class is the concealment of material circumstances, such as that a ship described like the one proposed for insurance was taken, or was spoken to at sea in a leaky state, or any causes of more than common danger.

But there are several things which the assured need not communicate because they either are or ought to be known by the underwriter. For the latter is bound to know all perils depending on war or peace—the nature and danger of the voyage, &c. With respect to other information, it is enough to communicate the facts: the underwriter is not entitled to know the assured's conclusions, nor his fears and apprehensions.

As to the third kind of fraud, it consists not of wilful falsehood, nor suppression of the truth; but of a material mistake in the representation made. The underwriter, having computed the risk upon a certain state of things, is released from his obligation if they have been misrepresented, however innocently. The misrepresentation of an agent is equally fatal as that of the principal, even though unknown to the latter.

The fraud must be fully and satisfactorily proved in order to set aside the policy, and the burthen of proof lies on the party who seeks advantage from it.

2. *Of a deviation in the voyage*; which is a voluntary departure, without necessity, or reasonable cause, from the usual course. By this the underwriters are discharged. To support this defence, it is not necessary that the loss should have happened in consequence of the deviation, because the voyage has been determined by the change; and it is immaterial whether the owner consented or not to the deviation. Putting into an unusual port, or staying an unusual time, is a deviation. The deviation for a single hour is fatal.

The justifications for a deviation are: to repair the vessel,—to avoid an impending storm,—to escape from an enemy,—or to seek convoy. When that is done which is for the general benefit of the parties concerned, the act is within the policy. The motives, end, and consequence of the act are the grounds of determining whether the deviation be justifiable or not. An intention to deviate does not affect the policy.

3. *Changing the ship, or substituting another* for that mentioned in the policy, before the voyage commences, annuls the contract; and if during the voyage the property be removed from

one ship to another, without the underwriter's consent, or unavoidable necessity, the implied condition is broken.

4. *Of unseaworthiness.*—Every ship, by an implied warranty, must be able to perform the voyage, unless some accident should occur; and if she have a defect, though unknown to the owner, the contract is vacated. If, however, the decay did not commence till after the insurance, the liability of the insurer will attach however soon the loss may happen. Seaworthiness includes every necessary equipment. The want of a pilot, where the navigation usually requires one, will discharge the underwriter. The vessel must also be properly manned, that is, she must have on board a sufficient number of skilful mariners for the usual purposes of navigation.

SECT. V.—OF ILLEGAL INSURANCES.

It is necessary that the risks which are insured against should be such as may legally be incurred. The contract may, in the very terms and nature of it, be illegal. The voyage during which the danger is incurred may also be contrary to law. And, lastly, the property sought to be insured may be of a prohibited nature. Of these each in its order.

1. *Of wager policies, or policies upon interest or no interest.* The performance of a voyage in a reasonable time is here the only object of insurance, and they were always looked upon with great jealousy by the courts of law. The courts of equity considered them as absolutely void. The statute 19 Geo. II., c. 37, declares them illegal, but contains an exception for insurances on private ships of war fitted out solely against his majesty's enemies, and also provides for the insurance of merchandise from any ports in Europe or America in the possession of the crowns of Spain and Portugal. It has also been decided that the act does not extend to insurances of foreign property.

2. *Of illegal voyages, or such as are expressly prohibited by the common, statute, or maritime law, and which are consequently void.* In those cases it is not material whether the underwriter knew that the voyage was illegal or not. Even a neutral ship cannot be insured when the voyage is prohibited by embargo.

3. *Of prohibited goods, insurances upon which are illegal, the importation of them being prohibited.* These consist of such foreign merchandises as are declared contraband. The insurance of articles prohibited from being exported is also void, as wool, woollens, &c. So also insurances which in any way defraud the revenue, obstruct the navigation acts, or contravene the royal proclamation in time of war, or relate to things which in their nature are contraband, as arms or ammunition to an enemy, are null and void. An insurance of prohibited goods against the risk of seizure by the government is void. Lastly, slaves and the property of enemies are not insurable, and no action can be maintained thereon. For respondentia and bottomry, see RESPONDENTIA.

MARINE SURVEYOR, a machine contrived by Mr. H. de Saumarez for measuring the way of a ship in the sea. This machine is in the form of

the letter Y, and is made of iron or any other metal. At each end of the lines which constitute the angle, or upper part of that letter, are two pallets, resembling the figure of the log; one of which falls in the same proportion as the other rises. The falling or pendant pallet, meeting a resistance from the water, as the ship moves, has thereby a circular motion under water, which is faster or slower according as the vessel moves. This motion is communicated to a dial within the ship, by a rope fastened to the tail of the Y, and carried to the dial. The motion being thus communicated to the dial, which has a bell in it, it strikes exactly the number of geometrical paces, miles, or leagues which the ship has run. Thus the ship's distance is ascertained; and the forces of tides and currents may also be discovered by this instrument; which has, however, been very little used.

MARINELLA (Lucretia), a Venetian lady of the seventeenth century, who published, 1. The Life of the Virgin Mary; 2. The Life of St. Francis; and, 3. A curious tract in which she maintains the superiority of the female sex over the male: with several other works.

MARINGUES, a manufacturing and trading town of France, in the department of the Puy de Dome. It has a brisk trade in corn, and 3800 inhabitants; fourteen miles north-west of Thiers.

MARINO (John Baptist), a celebrated Italian poet, born at Naples in 1569. His father, who was an able civilian, obliged him to study the law; at which, being disgusted, he left his parents, and retired to the house of Sieur Manzi, who was a friend to all men of genius. He at length became secretary to Matthew of Capua, great admiral of Naples, and contracted a friendship with Tasso. He went soon after to Rome, and entered into the service of cardinal Aldobrandini, nephew to pope Clement VIII., who took him with him to Savoy. Marino was in great favor with the court of Turin; but afterwards created himself many enemies there, the most furious of whom was the poet Gaspard Murtola, who, attempting to shoot him with a pistol, wounded one of the duke of Savoy's favorites. Marino, being obliged to leave Turin, went to Paris at the desire of queen Mary de Medicis, and published there his poem on Adonis. He afterwards went to Rome, where he was made prince of the academy of the humoristi; and thence to Naples, where he died while he was preparing to return home. He had a very lively imagination, but little judgment. His works, which are numerous, have been often printed.

MARINO (St.), a native of Dalmatia, originally brought up a mason, who flourished in the fifth century; and, having turned hermit, retired to the mountain which still bears his name. His devotion and austerity soon procured him such a high reputation for sanctity, that the Italian princess, on whose property the mountain was situated, made him a present of it; whereupon great numbers of people, out of veneration for the saint, took up their residence upon it, and thus laid the foundation of the town and republic of St. Marino. He is venerated as the greatest of the saints, next to the Virgin Mary,

and to speak disrespectfully of him is punished as blasphemy.

MARINO (St.), a small republic of Italy, said to be founded by the saint above named, and consisting only of a mountain, a town, and a few hills about the bottom of it, six miles in extent. The number of the inhabitants is about 7000. The mountain yields good wine, but they have only rain or snow water. In the whole territory there are only three castles, three convents, and five churches. The largest of the churches is dedicated to the saint, and contains his ashes and his statue. All that are capable of bearing arms are exercised. In the ordinary course of government, the administration was in the hands of the council of sixty, which, however, consisted only of forty members, one half of whom are of noble families, and the other of plebeian. On extraordinary occasions, however, the arengo, or great council, in which every house has its representative, is called together. The two principal officers are the capitaneos, who are chosen every half year; next to them is the commissary, who judges in civil and criminal matters, and is joined in commission with the capitaneos. When an ambassador is sent to any foreign state, he is allowed about 1s. a day. In the year 1100 the republic purchased the castle of Pennarosta, and in 1170 that of Casalo. About 1460 it assisted pope Pius II. against Malatesta lord of Rimini; in return for which he made over to it the forts of Serravalle, Faetano, Mont Giardino, and Florentino. During all the late various revolutions of Italy this republic preserved its liberty and a nominal independence; upon the peace, in 1802, the citizens new-modelled their constitution, by adding one-fourth to the number of the little council, and increasing that of the great council to 300. It acknowledges the pope as its protector.

MARINUS, an engraver who flourished about 1630, and resided principally at Antwerp. His plates are executed in a very singular style, with the graver only: the strokes are very fine and delicate, and crossed over each other in a lozenge-like form, which he filled up with thin long dots. His prints, though generally very neat, are defective in the determination of the folds of the draperies and the outline of the human figure; the extremities of which are heavy, and not marked with precision. Fine impressions from his best plates are, however, much sought after by collectors; those especially after Rubens and Joardens are held in very high estimation.

MARION AND CROZET'S ISLANDS, four islands in the Indian Ocean, discovered by Marion and Crozet, French navigators in 1772, by whom they were called Cavern Island (situated in long. 32° 11' E., lat. 46° 45' S.), Bold Island, Possession Island, and Arid Island. They were afterwards seen by captain Cook in 1776.

MARJORAM, *n. s.* Lat. *marjorana*; Fr. *marjolaine*. A fragrant plant.

The nymphs of the mountains would be drawn, upon their heads garlands of honeysuckles, woodbine, and sweet *marjoram*. *Peacham.*

MARJORAM, in botany. See ORIGANUM.

MARIQUITA, a city of South America, in New Granada, formerly celebrated for its mines

of gold and silver, These, however, having been long abandoned, its population is much reduced. It has a good parish church, and several other edifices. Eighty miles south of Santa Fe.

MARISH, *n.s.* Fr. *marais*; Sax. *meþrc*; Belg. *muersche*; Teut. *march*. A bog; fen; swamp; morass; moor. See **MARSH**.

When they had avenged the blood of their brother, they turned again to the *marish* of Jordan.

1 Mac. ix. 42.

The fen and quagmire so *marish* by kind,
Are to be drained. *Tusser's Husbandry.*

His limbs he couleth in the cooler shades;
Oft, when heaven's burning eye the fields invades,
To *marishes* resorts. *Sandys's Paraphrase.*
Lodronius, carried away with the breaking in of
the horsemen, was driven into a *marish*; where, being
sore wounded, and fast in the mud, he had done the
utternmost. *Knolles.*

From the other hill
To their fixed station, all in bright array,
The cherubim descended; on the ground
Gliding meteorous, as evening mist
Risen from a river, o'er the *marish* glides,
And gathers ground fast at the labourer's heels.
Milton.

It hath been a great endangering to the health of
some plantations, that they have built along the sea
and rivers, in *marish* and unwholesome grounds.

Bacon's Essays.

The flight was made towards Dalkeith; which
way, by reason of the *marish*, the English horse were
least able to pursue. *Hayward.*

MARITAGIUM, in the feudal customs, as
contradistinguished from matrimonium, signifies
the power which the lord or guardian in chivalry
had of disposing of his infant ward in matrimony.
For, while the infant was in ward, the
guardian had the power of tendering him or her
a suitable match without disparagement or in-
equality; which, if the infants refused, they for-
feited the value of the marriage, *valorem maritagi*,
to their guardian; that is, so much as a
jury would assess, or any one would *bonâ fide*
give to the guardian for such an alliance: and if
the infants married themselves without the guar-
dian's consent, they forfeited double the value,
duplicem valorem maritagi.

MARITAL, *adj.* Lat. *maritus*. Of, or per-
taining to, a husband.

If any one retains a wife that has been taken in
the act of adultery, he incurs the guilt of the crime
of bawdry. But because repentance does consist in
the mind, and since Christian charity, as well as
marital affection, easily induces a belief thereof, this
law is not observed. *Ayliffe.*

It has been determined, by some unpolite profes-
sors of the law, that a husband may exercise his *ma-
rital* authority so far, as to give his wife moderate
correction. *Art of Tortmenting.*

MARITIMAI, *adj.* } Lat. *maritimus*; Fr.
MARITIME, *adj.* } *maritime*. Performed
on, or pertaining to, the sea; bordering on the
sea; marine.

I discoursed of a *maritimal* voyage, and the pas-
sages and incidents therein. *Raleigh's Essays.*

The friend, the shores *maritimal*
Sought for his bet, and found a place upon which
played

The murmuring billows. *Chapman's Iliad.*

At the parliament at Oxford his youth, and want
of experience in *maritime* service, had somewhat been
sharply touched. *Wotton.*

Ereco, and the less maritime kings

Monbaza and Quiloo.

Milton.

Neptune upbraided them with their stupidity and ig-
norance, that a *maritime* town should neglect the pa-
tronage of him who was the god of the seas. *Addison.*

MARITIME LAW. Under the article **LAW**
we have briefly enumerated the courts maritime,
and the general nature of the injuries cognizable
therein. It remains for us in this place to pre-
sent the reader with a summary of the legal pro-
visions which relate to foreign trade; the registry
of ships; their hire and mortgage; the liabilities
of the master; the mutual obligations of the
several owners of ships and cargo; and the lien
of creditors upon the ship, and other remedies.

SECT. I.—OF THE LAWS RELATING TO FOREIGN TRADE.

The objects or policy of the navigation acts of
Great Britain are stated to be the following:
first, to secure to our own shipping the carrying
trade. Secondly, to confine our trade to the
capital of our own merchants, by excluding
foreigners from being intermediate negotiators,
except those who are the subjects of the countries
of which the articles are the produce or manu-
facture. Thirdly, to encourage our own manufac-
tures by checking the introduction into the same
market of foreign articles.

These objects are in a very considerable de-
gree attained by enforcing the employment of
British shipping under the regulations prescribed
by the several navigation acts.

It may be necessary to state that 'a British-
built ship' is legally defined to be such as has
been built in Great Britain or Ireland, Guern-
sey, Jersey, or the Isle of Man, or in some of the
colonies, plantations, islands, or territories, in
Asia, Africa, or America, which, at the time of
building the ship, belonged to, or were in the
possession of, the crown of England; or any ship
whatsoever which has been taken and condemned
as lawful prize. But a British built vessel, cap-
tured by an enemy, and afterwards purchased by
a subject, cannot be registered as a British ves-
sel, though ships actually re-captured may be so
registered.

By the 6 Geo. IV., c. 109, no goods are to be
exported from the United Kingdom to any British
possession in Asia, Africa, or America, except in
British ships.

It is also required, by the same statute, that
British registered ships must be navigated, dur-
ing the whole voyage, by a British master, and
three-fourths of the crew are also to be British
seamen. On a coasting voyage, or in passing
between Guernsey, Jersey, Sark, Alderney, or
Man, the whole of the crew must be British. A pe-
nalty of £10 is inflicted for each foreign seaman
beyond the proportion.

Goods cannot be imported into any British
settlement in Asia, Africa, or America, in any
foreign ship, unless it belong to the country
where the goods were produced.

Amongst other regulations, in the maritime
law, it may not be immaterial to mention the
following, which relates to the carrying of pas-
sengers between Great Britain and Ireland.

According to the provisions of the 4 Geo. IV.,
c. 88, merchant-vessels of not more than 100

tons burthen are not to carry more than ten passengers. Those of not more than 200 tons are limited to twenty passengers. The penalty for each person beyond these numbers is £5. Vessels are licensed by the collector of the customs from the port of sailing in the following proportions: five adult persons, or ten children under fourteen years, or fifteen children under seven, for every four tons burthen. If the vessel be partly laden, the same proportion takes place for every four tons unladen. The penalty for carrying more than twenty, without license, is £50; and, if licensed, £5 for each person beyond the above proportion.

SECT. II.—OF THE LAWS RELATING TO SHIPS.

1. *Of their registry.*—The 6 Geo. IV., c. 110, provides for the registry of vessels with the collector and comptroller of the customs, without which the ship is not entitled to the privileges of British shipping under the act for its encouragement, and vessels are liable to forfeiture which exercise the rights of registered ships before they are duly registered. The name of the vessel must be painted on the stern under a penalty of £10, and no change can take place in the name without a new register. A document called 'the ship's register,' or certificate of registry, is granted by the custom-house, which, whilst the vessel continues to belong to the original owner, is the best evidence of title. When a transfer takes place, the vender executes a 'bill of sale,' which must be registered at the custom-house, and the transfer indorsed on the ship's register, within a certain time, when in port or after her arrival.

As often as the master of a ship is changed a memorandum must be indorsed on the certificate of registry.

If the certificate be lost or mislaid, or if a ship be altered in form or burthen, or from one denomination of vessel to another, by rigging or fitting, it must be registered de novo, and a new certificate obtained. The masters of ships must produce the certificate of registry, on demand, to the principal officer in any port within the king's dominions, or to the British consul, or chief officer, in any foreign port. For refusal they are liable to a penalty of £100.

2. *Of letting and hiring the ship.*—This is effected by a contract, termed a charter party, between the master and freighters, in which the ship and voyage is described, and the time and conditions of performing it are ascertained. The freight is most frequently determined for the whole voyage, without respect to time. Sometimes it depends on the time. In the former case it is either fixed at a certain sum for the whole cargo; or so much per ton, barrel bulk, or other weight or measure, or so much per cent. on the value of the cargo. The invoices are produced to ascertain the value. The burden of the ship is generally mentioned in the contract, in this manner, 100 tons or thereabouts; and the number mentioned ought not to differ above five tons, at most, from the exact measure. If a certain sum be agreed on, for the freight of the ship, it must all be paid, although the ship, when measured, should prove less, unless the burden be war-

ranted. If the ship be freighted for transporting cattle, at so much a head, and some of them die on the passage, freight is only due for such as are delivered alive; but, if for lading them, it is due for all that were put on board. When a whole ship is freighted, if the master suffers any other goods besides those of the freighter to be put on board he is liable for damages. It is common to mention the number of days that the ship shall continue at each port to load or unload. The expression used is work weather days; to signify that Sundays, holydays, and days when the weather stops the work, are not reckoned. If the ship be detained longer a daily allowance is often agreed on in name of demurrage. If the voyage be completed in the terms of the agreement, without any misfortune, the master has a right to demand payment of the freight before he delivers the goods. But, if the safe delivery be prevented by any fault or accident, the parties are liable according to the following rules. If the merchant do not load the ship within the time agreed on the master may engage with another and recover damages. If the merchant load the ship, and recal it after it has set sail, he must pay the whole freight; but if he unload it before it sets sail he is liable for damages only. If a merchant loads goods which it is not lawful to export, and the ship be prevented from proceeding on that account, he must pay the freight notwithstanding. If the ship-master be not ready to proceed on the voyage at the time agreed on, the merchant may load the whole, or part of the cargo, on board another ship, and recover damages. If an embargo be laid on the ship before it sails, the charter party is dissolved, and the merchant pays the expense of loading and unloading; but, if the embargo be only for a short limited time, the voyage shall be performed when it expires, and neither party is liable for damages. If the ship-master sails to any other port than that agreed on, without necessity, he is liable for damages; if through necessity, he must sail to the port agreed on at his own expense. If a ship be taken by the enemy, and retaken or ransomed, the charterparty continues in force. If the master transfer the goods from his own ship to another, without necessity, and they perish, he is liable for their value; but, if his own ship be in imminent danger, the goods may be put on board another ship at the risk of the owner. If a ship be freighted out and home, and a sum agreed on for the whole voyage, nothing is due till it return; and the whole is lost if the ship be lost on the return. If a certain sum be specified for the homeward voyage, it is due, although the factor abroad should have no goods to send home.

3. *Of pledging or hypothecating the ship.*—The master of the ship has power to pledge or hypothecate the ship, and also the goods, or either of them, in case the vessel springs a leak at sea, or is in danger from any other cause of being lost. But his authority extends only to instances in which the safety of the ship and the due prosecution of the voyage is concerned. Consequently the master cannot incur either the ship or goods for his own debt. He is at liberty con-

sistently with this principle to pledge the ship for necessary repairs during a voyage; and this mortgage or hypothecation is implied by the maritime law, when such debts are contracted. This regulation is necessary, and is therefore adopted by all commercial nations; for, otherwise, the master might not find credit for necessary repairs, and the ship might be lost. If repairs be made at different places, the last which are made are preferable. The relief against the ship is competent, to the court of admiralty in England, only when repairs are furnished during the course of a voyage, for the necessity of the case extends no further.

SECT. III.—OF THE LIABILITIES OF THE MASTER.

The master is liable, 1st. for damages or loss sustained by the non-performance of the charter party; 2dly, for the debts he incurs on behalf of the ship, but which, as already stated, he has power to secure by its hypothecation.

In the case of a ship freighted to Madeira, Carolina, and home, a particular freight was fixed for the homeward voyage, and an option reserved for the factor at Carolina to decline it, unless the ship arrived before the 1st of March. The shipmaster foreseeing he could not arrive there within that time, and might be disappointed of a freight, did not go thither at all. He was found liable in damages, as the obligation was absolute on his part, and conditional only on the other. If the goods be damaged, without fault of the ship or master, the owner is not obliged to receive them and pay freight, but he must either receive the whole, or abandon the whole, he cannot choose those that are in best order, and reject the others. If the goods be damaged through the insufficiency of the ship, the master is liable; but, if it be owing to stress of weather, he is not accountable. It is customary for ship masters, when they suspect damage, to take a protest against wind and weather at their arrival. But, as this is the declaration of a party, it does not bear credit unless supported by collateral circumstances. If part of the goods be thrown overboard, or taken by the enemy, the part delivered pays freight. The shipmaster is accountable for all the goods received on board by himself or mariners, unless they perish by the act of God, or of the king's enemies. Shipmasters are not liable for leakage on liquors; nor accountable for the contents of packages, unless packed and delivered in their presence. Upon a principle of equity, that the laborer is worthy of his hire, differences arising with regard to freight, when the case is doubtful, ought rather to be determined in favor of the shipmasters.

SECT. IV.—OF THE MUTUAL OBLIGATIONS OF THE OWNERS OF SHIP AND CARGO.

There is a mutual obligation which subsists between the owners of a ship and cargo. In time of danger, it is often necessary to incur a certain loss of part for the greater security of the rest; to cut a cable; to lighten the ship, by throwing part of the goods overboard; to run it ashore, or the like; and, as it is unreasonable that the owners of what is exposed for the common

safety should bear the whole loss, it is defrayed by an equal contribution among the proprietors of the ship, cargo, and freight. This is the famous *lex Rhodia de jactu*, and is now called a general average. The custom of valuing goods which contribute to a general average is not uniform in all places. They are generally valued at the price they yield at the port of destination, charges deducted; and goods thrown overboard are valued at the price they would have yielded there. Sailors' wages, clothes, and money belonging to passengers, and goods belonging to the king, pay no general average; but proprietors of gold and silver, in case of goods being thrown overboard, contribute to the full extent of their interest. The following particulars are charged as general average: Damage sustained in an engagement with the enemy; attendance on the wounded, and rewards given for service in time of danger, or gratuities to the widows or children of the slain; ransom, goods given to the enemy in the nature of ransom; charges of bringing the ship to a place of safety when in danger from the enemy, or waiting for convoy; charges of quarantine; goods thrown overboard; masts or rigging cut; holes cut in the ship to clear it of water; pilotage when a leak is sprung; damage when voluntarily run aground, and expense of bringing it afloat; goods lost by being put in a lighter; the long boat lost in lightening the ship in time of danger; hire of cables and anchors; charges of laying in ballast, victualling, and guarding the ship when detained; charges at law in reclaiming the ship and cargo: interest and commission on all these disbursements. Though goods put on board a lighter, and lost, are charged as a general average; yet if the lighter be saved, and the ship with the rest of the goods be lost, the goods in the lighter belong to their respective proprietors without being liable to any contribution. If part of the goods be plundered by a pirate, the proprietor or shipmaster is not entitled to any contribution. The essential circumstances that constitute a general average are these: the loss must be the effect of a voluntary action, and the object of that action the common safety of the whole.

SECT. V.—OF THE RIGHTS OF THE SHIP'S CREDITORS.

Of their lien on the ship, and their remedies against the owners.—When debts are contracted for provisions or repairs to a ship, or arise from a failure in any of the obligations stipulated in the charter party, the ship and tackle, and the owners are liable for the debt, as well as the master. By the mercantile law, the owners are liable in all cases, without limitation; but by statute they are not liable for embezzlement, beyond their value of ship, tackle, and freight.

If a ship be repaired at home (e. g. upon the Tay or Thames) the creditor is only entitled to relief at common law. The creditor may sue either the master or owners; but, if he undertook the work on the special promise of the one, the other is not liable. If the master buys provisions on credit, the owners are liable for the debt, though they have given him money to pay for them. If a ship be mortgaged, and afterwards lost at sea,

the owners must pay the debt ; for the mortgage is only an additional security, though there be no express words to that purpose in the covenant. If a ship be taken by the enemy, and ransomed, the owners are liable to pay the ransom ; though the ransomer die in the hands of the captors.

The ship owners are not liable for more than the value of the ship and freight, on account of damages sustained by the loss of goods. Where there are several owners, and one disagrees from the voyage, he is not liable to any action subsequently for miscarriage or otherwise.

For other branches of the maritime law, see *MARINE INSURANCE, QUARANTINE, RESPONDENTIA, WRECK, &c.*

MARIVAUX (Peter Carlet de), a French dramatic writer, born of a good family in Paris in 1688. A fine understanding, improved by education, distinguished him early. He met with the highest success in comic productions, which, with the merit of his other works, procured him a place in the French Academy. He died in Paris in 1763, aged seventy-five. His works consist of 1. *Pieces de Theatre*, 4 vols. 12mo.; 2. *Homere travesti*, 12mo.; 3. *Le Spectateur Français*, 2 vols. 12mo.; 4. *Le Philosophe Indigent*, 12mo.; 5. *Vie de Marianne*, 2 vols. 12mo.; one of the best romances in the French language; 6. *Le Paysan Parvenu*, 12mo.; 7. *Pharsamon*.

MARIVELAS, or **MARIVELLE**, one of the smaller Philippine Islands, with a village on it of the same name, consisting of about forty houses, built of bamboo. The floor of these houses, is also made of small bamboos, which do not touch each other, and which give them the appearance of bird cages. The mode of ascending them is by a ladder. The island was invaded by the Moors in 1810, who destroyed the village, and made slaves of all the Indians. Since this period, the inhabitants have never applied to industry; and are wretchedly poor.

MARIUPOL, a town of European Russia, on the sea of Azoph, in the government of Ekaterinoslav, at the mouth of the Kalmius. Population 2000. 140 miles south-east of Ekaterinoslav.

MARIUS (Caius), a Roman general, and seven times consul, but who sullied his great military reputation by savage barbarities. He was born at Arpinum, of obscure parents. He signalled himself under Scipio, at the siege of Numantia. The Roman general saw his courage and intrepidity, and foretold his future greatness. By his intrigues at Rome, while he exercised the inferior offices of the state, he first rendered himself known; and his marriage with Julia, who was of the family of the Cæsars, contributed to raise him to consequence. He went to Africa as lieutenant to the copul Metellus against Jugurtha, and there ingratiated himself with the soldiers; and having raised enemies to his benefactor, he returned to Rome and canvassed for the consulship. By his extravagant promises to the people, and his malevolent insinuations against Metellus, he proved successful. He was appointed to finish the war against Jugurtha, and showed his military talents by defeating Jugurtha. See *JUGURTHA*. The Roman provinces being suddenly invaded by an army of 300,000

barbarians, Marius was elected consul, and sent against the Teutones. The war being prolonged, Marius was a third and fourth time invested with the consulship. At last two engagements were fought, and not fewer than 200,000 of the forces of the Ambrones and Teutones were slain in the field of battle, and 90,000 made prisoners in A. U. C. 650. In 651 the Cimbri, another horde of barbarians, were defeated; 140,000 of them were slaughtered by the Romans, and 60,000 taken prisoners. After these victories Marius, with his colleague Catullus, entered Rome in triumph; and Marius received the appellation of the third founder of Rome. He was elected consul a sixth time; but his restless ambition began to raise seditions, and to oppose the power of Sylla. This was the foundation of a civil war. Sylla refused to deliver up the command of his forces, with which he was empowered to prosecute the Mithridatic war; and considered the demand as arbitrary and improper. He marched to Rome, and Marius was obliged to fly. Adverse winds prevented him from seeking a retreat in Africa, and he was left on the coast of Campania, where Sylla's emissaries discovered him in a marsh, into which he had plunged himself, leaving only his mouth above the surface for respiration. He was dragged to the neighbouring town of Minturnæ; and the magistrates, being in the interest of Sylla, passed sentence of death on their illustrious prisoner. A Gaul was commanded to cut off his head in the dungeon; but the stern countenance of Marius disarmed the courage of the executioner: and when he heard him say, *Tunc, homo, audes occidere Caium Marium?* the dagger dropped from his hand. Such an adventure moved the compassion of the inhabitants of Minturnæ. They liberated Marius, and favored his escape to Africa, where he joined his son, who had been arming the princes of that country in his cause. Marius landed near the walls of Carthage, but his retreat was soon known; and the governor of Africa, to conciliate the favor of Sylla, compelled Marius to fly to a neighbouring island. He soon after learned that Cinna had embraced his cause at Rome, where the Roman senate had stripped him of his consular dignity, and bestowed it upon one of his enemies. Marius set sail to assist his friend at the head of only 1000 men. His army, however, was soon increased, and he entered Rome like a conqueror. His enemies were inhumanly sacrificed to his fury; Rome was filled with blood; and he, who once had been called the father of his country, marched through the city, attended by a number of assassins, who slaughtered all those whose salutations were not answered by their leader. When Marius and Cinna had sufficiently gratified their rage they made themselves consuls: but Marius, already worn out with old age and infirmities, died sixteen days after he had been elected consul the seventh time, A. U. C. 666, and A. A. C. 86. Brought up in poverty, and among peasants, he always retained his native rusticity, and despised in others those polished manners which education had denied him. Being himself illiterate, he hated the conversation of the learned; and his sobriety and temperance were

owing to the obscurity in which he had lived at Arpinum. His countenance was stern, his voice firm and imperious, and his disposition untractable. He was in his seventieth year when he died; and Rome rejoiced at the fall of a man whose ambition had proved so fatal to many of her citizens. His only qualifications were those of a great general; and these rendered him the most powerful of the Romans, because he was the only one whose ferocity seemed able to oppose that of the barbarians.

MARIUS (M. Aurelius), a native of Gaul; who, from being a blacksmith, became one of the generals of Gallienus, and at last caused himself to be saluted emperor. Three days after this elevation, a man, who had shared his poverty without partaking of his prosperity, assassinated him with a sword which Marius himself had made in his obscurity. Marius has been celebrated for his great strength; and it is reported that he could stop, with one finger only, the wheel of a chariot in its most rapid course.

MARIUS, an ancient British monarch, the son of king Arviragus, whom he succeeded A. D. 74. He conquered the Picts, and erected a stone upon Stanmere in memory of his victory. Dr. Anderson says he married a daughter of the celebrated queen Boadicea. He died A. D. 125, after having reigned fifty-one years.

MARIZZA, or MARISSA, the ancient Hebrus, a river of European Turkey, in Romania, which has its source in the Hæmus Mountains, passing by Philippopoli, Adrianople and Trajanopoli, and discharging itself by two mouths into the Gulf of Enos. Its banks are in general fertile, and in its course it receives the waters of various small rivers.

MARK, *n. s., v. a., & v. n.* } Sax. meapce;
MARKSMAN, *n. s.* } Belg. mercke;

Teut. and Swed. *mark*; Fr. *marque*; Ital. *marca*. A sign; token; proof; notice; butt; impression: hence a coin of the value of 13s. 4d.: to mark is to impress, or notify, by, or as by, a sign or token; to note; heed: as a neuter verb, to take notice: a marksman is a skilful man at hitting a mark.

Worche ye not mete that perischeth, but that dwellith into euerlastinge lyf, which mete mannes sone schal geue to you: for God the father hath markyd him. *Wiclif. Jon vi.*

Mark them which cause divisions contrary to the doctrine which ye have learned, and avoid them. *Romans xvi. 17.*

Once was proclaimed throughout all Ireland, that all men should mark their cattle with an open several mark upon their flanks or buttocks, so as, if they happened to be stolen, they might appear whose they were. *Spenser on Ireland.*

The laws

Stand like the forfeits in a barber's shop,

As much for mock as mark. *Shakespeare.*

We give thee for reward a thousand marks. *Id.*

In sadness, cousin, I do love a woman.

—I aimed so near when I supposed you loved.

—A right good marksman. *Id.*

Alas, poor country!

Where sighs, and groans, and shrieks, that rend the air.

Are made, not marked. *Id. Macbeth.*

At two years old cometh the mark of tooth in horses. *Bacon's Natural History.*

Men mark when they hit, and never mark when they miss, as they do also of dreams. *Id. Essays*

Whom nothing can procure,

When the wide world runs bias from his will,

To writhe his limbs, and share, not mend the ill:

This is the marksman, safe and sure,

Who still is right, and prays to be so still. *Herbert.*

Thirty of these pence make a mancuss, which some think to be all one with a mark, for that manca and mancusa is translated in ancient books by marca.

Camden's Remains.

France was a fairer mark to shoot at than Ireland, and could better reward the conqueror. *Davies.*

Upon the north sea bordereth Stow, so called, per eminentiam, as a place of great and good mark and scope. *Carew's Survey of Cornwall.*

That which was once the index to point out all virtues, does now mark out that part of the world where least of them resides. *Decay of Piety.*

Be made the mark

For all the people's hate, the prince's curses

Denham.

Incurable are the wounds which the slanderer inflicth, irreparable the damages which he causeth, indelible the marks which he leaveth. *Barrow.*

But cruel fate, and my more cruel wife,
To Grecian swords betrayed my sleeping life;

These are the monuments of Helen's love,

The shame I bear below, the marks I bore above.

Dryden.

Here are marriage vows for signing;

Set your marks that cannot write. *Id.*

Mark a little why Virgil is so much concerned to make this marriage; it is to make way for the divorce which he intended afterwards. *Id.*

Now swear and call to witness

Heaven, hell, and earth, I mark it not from one

That breathes beneath such complicated guilt.

Smith.

For our quiet possession of things useful, they are naturally marked where there is need.

Grew's Cosmology.

In the present form of the earth there are certain marks and indications of its first state; with which, if we compare those things that are recorded in sacred history, we may discover what the earth was in its first original. *Burnet.*

The Argonauts sailed up the Danube, and from thence passed into the Adriatick, carrying their ship Argo upon their shoulders; a mark of great ignorance in geography among the writers of that time.

Arbuthnot on Coins.

Lorenzo signed the bargain with his mark.

Young.

And, if he doom that people with a frown,
And mark them with a seal of wrath pressed down,
Obduracy takes place; callous and tough,
The reprobated race grows judgment proof. *Courper.*

MARK is used among us for a money of account, and in some other countries for a coin. See MONEY. The Scottish mark is 13½d.

MARK, or MARC, denotes also a weight used in several states of Europe, and for several commodities, especially gold and silver. When gold and silver are sold by the mark, it is divided into twenty-five carats.

MARK (St.), the evangelist, was descended of the tribe of Levi. He is supposed to have been converted by St. Peter, to whom he was a constant companion in all his travels, supplying the place of an amanuensis and interpreter. He was by him sent into Egypt, fixing his chief residence at Alexandria, where he converted

great multitudes. He afterwards removed westward, towards Lybia, travelling through Mar-morica, Pentapolis, &c., where, notwithstanding the barbarity and idolatry of the inhabitants, he planted the gospel. Upon his return to Alexandria, he set in order the affairs of that church, and there suffered martyrdom. About Easter, when the solemnities of Serapis were celebrated, the idolatrous people broke in upon St. Mark, while he was performing divine service, and, binding him with cords, dragged him through the streets, and thrust him into prison. Next day they dragged him about till he expired under their hands. Some add, that they burnt his body, and that the Christians interred his bones and ashes near the place where he used to preach. This happened A.D. 68. Some say that his remains were afterwards translated from Alexandria to Venice, where he has a rich and stately church erected to his memory, being the patron of the state. He is author of the gospel that bears his name.

MARK, (St.), CANONS OF, a congregation of regular canons founded at Mantua by Albert Spinola, a priest, towards the end of the twelfth century. Spinola formed rules for them, which were approved, corrected, and confirmed by several succeeding popes. About the year 1450 they were reformed, and followed only the rule of St. Augustine. This congregation, having flourished by the space of 400 years, declined by degrees, and is now become extinct.

MARK (St.), GOSPEL OF, a canonical book of the New Testament, one of the four gospels. St. Mark wrote his gospel at Rome, whither he accompanied St. Peter, A.D. 44. Tertullian and others assert that St. Mark was only amanuensis to St. Peter, who dictated this gospel to him; others affirm that he wrote it after St. Peter's death. Nor are the learned less divided as to the language it was written in; some affirming that it was composed in Greek, others in Latin. Several of the ancient heretics received only the gospel of St. Mark: others, among the Catholics, rejected the last twelve verses of this gospel.

MARK, (St.), KNIGHTS OF, an order of knighthood in the state of Venice, under the protection of St. Mark the evangelist. The arms of the order were, *gules*, a lion winged *or*; with this device, Pax tibi Marce Evangelista. This order was never conferred but on those who had done some signal service to the commonwealth. The badge of the order is represented in the annexed diagram.



MARK, a county of Westphalia, in the Prussian states, bounded on the north by the principality of Munster, and on the south and west by Berg. It is about sixty-seven miles long, and forty-five broad, and has a superficial extent of about 667 square miles. It is traversed by the Lippe and Rœr, and several inferior rivers. The Roer was rendered navigable in 1775, and divides the county into two parts, called the Hel-

weg and the Sauerland. The former is a fertile level of meadows and arable land, in which corn, leguminous plants, rape, and turnip seed, and flax and hemp abound. The southern division is bleak and rugged, its principal riches being the minerals of the mountains, which yield coal, iron, lead, copper, and a little silver ore. This county in 1806 fell into the hands of the French; but in 1814 was restored to Prussia. Inhabitants 132,000. The chief town is Hamm.

MARKET, *n. s. & v. u.* } *Sax. mancet*;
MARKETABLE, *adj.* } *Danish, market*;
MARKETBELL, *n. s.* } *Swed. markand*;
MARKETBETER, } *Teutonic, marckt*;
MARKETCROSS, } *from MARK (an*
MARKETDAY, } *assigned place of*
MARKETFOLK, } *meeting), which*
MARKETMAN, } *see. A public*
MARKETMAID, } *place, or time, for*
MARKETPLACE, } *buying and sell-*
MARKETPRICE, } *ing; act of pur-*
MARKETRATE, } *chase or sale;*
MARKET-TOWN, } *rate; price; to*
 deal at a market: marketable, is saleable; current in the market: market-beter, according to Upton, means, in Chaucer, one who raises the market price: marketman and maid are servants, or agents attending a market: market-rate, the current price of a commodity at market. The extracts will explain the other compounds.

They are like unto children sitting in the market-place and calling one to another, and saying, we have piped unto you and ye have not danced.

Luk. vii. 32.

They counted our life a pastime, and our time here a market for gain.

Ibid. xv. 12.

Round was his face and camuse was his nose.

As pilled as an ape was his skull:

He was a market-beter at the full.

Chaucer. Cant. Tales.

The king, thinking he had put up his sword, because of the noise, never took leisure to hear his answer, but made him prisoner, meaning the next morning to put him to death in the market-place.

Sidney.

It were good that the privilege of a market were given, to enable them to their defence; for there is nothing doth sooner cause civility than many market-towns, by reason the people repairing often thither will learn civil manners.

Spenser

Mistress, know yourself, down on your knees,
 And thank Heaven, fasting, for a good man's love;
 For I must tell you friendly in your ear,
 Sell when you can, you are not for all markets.

Shakspeare.

Enter, go in, the marketbell is rung. *Id.*

Poor marketfolks that come to sell their corn. *Id.*

Be wary how you place your words,
 Talk like the vulgar sort of marketmen,
 That come to gather money for their corn. *Id.*

These things you have articulated,
 Proclaimed at marketcrosses, read in churches,
 To face the garment of rebellion
 With some fine colour. *Id. Henry IV.*

You are come
 A marketmaid to Rome, and have prevented
 The ostentation of our love.

Id. Antony and Cleopatra.

The pretorian soldiers arrived to that impudence, that after the death of Pertinax they made open sale of the empire, as if it had been of common marketable wares.

Decay of Piety.

With another year's continuance of the war, there will hardly be money left in this kingdom to turn the common markets or pay rents.

Temple.

Fool that I was, I thought imperial Rome
Like Mantua, where on marketdays we come,
And thither drive our lambs. *Dryden's Virgil.*

The precious weight

Of pepper and Sabæan incense take,
And with post-haste thy running market make,
Be sure to turn the penny. *Id. Persius.*

The gates he ordered all to be unbarred,
And from the market-place to draw the guard.

Dryden.

Money governs the world, and the market-price is the measure of the worth of men as well as of fishes.

L'Estrange.

If one bushel of wheat and two of barley will, in the market, be taken one for another, they are of equal worth.

Locke.

The marketable value of any quantities of two commodities is equal, when they will exchange one for another.

Id.

The eye of God is upon men, not only when they are at church praying and hearing, but when they are in their markets and fairs, and upon the exchange, buying and selling.

Henry.

He ordered all the Lucquese to be seized that were found on a marketday in one of his frontier towns.

Addison on Italy.

No, no, the pope's mitre my master Sir Roger seized, when they would have burnt him at our market-town.

Gay.

Behold the marketplace with poor o'erspread,
The man of Ross divides the weekly bread. *Pope.*

THE MARKET, CLERK OF THE COURT OF, an officer incident to every fair and market in England, to punish misdemeanors therein. A court of pie-poudre is to determine all disputes relating to private or civil property. The object of this jurisdiction (see stat. 17 Car. II. cap. 19; 22 Car. II. cap. 8; 23 Car. II. cap. 12), is principally the cognisance of weights and measures, to try whether they be according to the true standard thereof or no: which standard was anciently committed to the custody of the bishop, who appointed some clerk under him to inspect the abuse of them more narrowly; and hence this officer, though now usually a layman, is called the clerk of the market. If they be not according to the standard, then, besides the punishment of the party by fine, the weights and measures themselves ought to be burnt. This is the lowest court of criminal jurisdiction in England.

MARKLAND (Jeremiah), one of the most learned scholars and critics of his age, was born in 1692, and educated in Christ's Hospital. He became first publicly known by his *Epistolæ Criticæ*, addressed to bishop Hare. In this he gave many proofs of his extensive erudition. He afterwards published an edition of Statius, and some plays of Euripides; and assisted Dr. Taylor in his editions of Lysias and Demosthenes, by notes. He also elucidated some passages in the New Testament, which may be found in Mr. Bowyer's edition of it; and was author of a very valuable volume of remarks on the epistles of Cicero to Brutus, and of an excellent treatise

entitled *Quæstio Grammatica*. He died in 1775 at Milton, near Dorking, in Surrey; and was equally valued for his learning and primitive simplicity of manners.

MARL, *n. s. & v. a.* Sax. *meþg* is marrow, says Dr. Johnson, to which he traces this word; but the root marg or margel is found to express its exact modern signification in all the Gothic dialects. A fat clay used as manure: to manure with marl.

So fert another clerk with astronomie;

He walked in the feldes for to prie
Upon the sterros, what ther shulde befall,
Till he was in a marle pit yfalle

He saw not that.

Chaucer. Cant. Tales.

Marl is the best compost, as having most fatness, and not heating the ground too much.

Bacon.

Uneasy steps

Over the burning marl not like those steps

On heaven's azure.

Milton.

Improvements by marling, liming, and draining, have been since money was at five and six per cent.

Child.

Sandy land marled will bear good pease.

Mortimer.

The oak thrives best on the richest clay, and will penetrate strangely to come at a marly bottom.

Id.

Marl is a kind of clay, which is become fatter, and of a more enriching quality, by a better fermentation, and by its having lain so deep in the earth as not to have spent or weakened its fertilizing quality by any product. Marl is supposed to be much of the nature of chalk, and is believed to be fertile from its salt and oily quality.

Quincy.

Several others, of different figures, were found; part of them in a rivulet, the rest in a marlyt in a field.

Woodward.

We understand by the term marls simple native earths, less heavy than the boles or clays, not soft and unctuous to the touch, nor ductile while moist, dry and crumbly between the fingers, and readily diffusible in water.

Hill.

MARL, or MARLE, a kind of calcareous earth, very much used in agriculture as a manure. Marl is dug in many places of Great Britain and Ireland. In digging for it in Ireland they meet with horns and other curious fossils. The marl always lies in the bottoms of low bogs, and is found by boring with augers made for that purpose. It usually lies at five, seven, or nine feet deep. The obtaining it in many places is attended with very considerable expense in draining off the water. The manner of digging for it is this: six able laborers and a supernumerary cut up a hole of twelve feet square, which is a pit that this number of men can manage in one day. Two men dig, two throw it up, and two throw it by, and the supernumerary man supplies defects on all occasions. For the first three feet they dig through a furry earth, fit for making turf or fuel. Under this lies a stratum of gravel, of about half a foot; under this often, for three feet more, there is a more kindly moss, which would make better fuel. This lower stratum is always full of fossil wood, which is usually so soft that the spade cuts as easily through it as through the earth it lies in. Under this, for the thickness of about three inches, is found a series of leaves, principally of the oak. These appear very fair to the

eye, but fall to pieces on being touched; and this stratum is sometimes interrupted by vast heaps of seed, of broom, or furze. In some places there appear berries of different kinds, and in others several species of sea-plants; all lying in the same confused manner as the oak leaves. Under this vegetable stratum lies one of blue clay, half a foot thick, and usually full of sea-shells. This blue clay is not so tough as common clay; but is thrown carefully up, and used as marl in some places. Under this always appears the true marl; the stratum of which is usually from two to four feet thick, and sometimes much more. This marl looks like buried lime, and is full of shells, which are usually of a small size, and of the periwinkle kind; but there are several other sorts at times found among them. Among this marl, and often at the very bottom of it, are found great numbers of very large horns of the deer kind, vulgarly called elks' horns. These, where they join to the head, are thick and round; and at that joining there grows out a branch, which is about a foot long, and seems to have hung just over the creature's eyes; it grows still round for about a foot above this, and then spreads out broad, and terminates in branches long and round, terminating with a small bend. There are also at times found the leg-bones and other parts of the skeletons of the same beasts; but this more rarely, only a few together, and but in few places. Black is of opinion that all kinds of marl derive their origin from the calcareous matter of shells and lithophyta. Shell marl, says he, is composed of the shells of aquatic animals, which are sometimes very entire, and often decayed or mixed down with other earthy substances. Examining this matter, as occurring in different places, it may be distinguished into fresh water marl, and the marl of sea-shells. Of the first we have an example in the meadow at Edinburgh. Wherever the soil is turned up, to the depth of six inches, a quantity appears. It is composed of the shells of a small fresh-water-snail or wulk. This animal, when alive, is not easily discernible, the shell being much of the same obscure color as the stones covered with the water. But we can observe a great number of them in all running brooks and other collections of fresh water; and, as the animal dies, the shells are deposited where the water stagnates in very great quantities. That composed of sea-shells constitutes greater collections, that are found in innumerable places now far removed from the sea. That most particularly described by Reaumur is a collection of this kind, in a province of France, and at Turin. That part of the country where it is found is computed to contain eighty square miles of surface; and, wherever they dig to a certain depth, they find this collection of shells: the country at present is 108 miles from the sea. They find the marl eight or nine feet below the surface, and they dig it to the depth of twenty feet. It is still deeper, but they find it too expensive to search for it. He supposed it to be only eighteen feet deep; and even at this depth the quantity will appear enormous. It will amount to 140,000,000 of cubic fathoms of shells that are mostly decayed

and broken into fragments, and mixed with other marine productions, as millepores, madrepores, and other coralline bodies, which are all productions of the sea. The qualities of marl have been proved by chemical analysis to be nearly the same with those of lime.

MARLBOROUGH, an ancient borough, and market town of Wiltshire, near the source of the Kennet, at the foot of a chalky hill; so named from its chalky marly soil. It was a Roman station. In 1627 a parliament was held in the castle here, whence those laws are called Marlborough statutes. There are still some remains of its walls and ditch. The town is an ancient borough by prescription, and sends two members to parliament. It is governed by a mayor, two justices, twelve aldermen, twenty-four burgesses, a town clerk, &c. It consists chiefly of one broad street, with piazzas all along one side of it, two churches, and several commodious inns, being the grand thoroughfare from London to Bath and Bristol. At the western extremity of the High Street stands the guildhall, supported on pillars, which enclose a space for the corn, cheese, and butter market, and above which are the council chamber, sessions-hall, and elegant assembly rooms. To the south are some relics of a priory, and the site of a Roman castrum, where Roman coins have been discovered. The ditch is still in some parts twenty feet wide; and towards the river, without the garden walls, one angle of the castrum is very visible, with the rampart and ditch entire. The mount at the west end of the town, which was the main-guard of the castle, is converted into a handsome spiral walk, at the top of which is an octagon summer-house. This town has often suffered by fire, particularly in 1690. It has markets on Wednesday and Saturday, and a charity school, erected in 1752, for forty-four children. It lies forty-three miles east of Bristol, and seventy-four west of London.

MARLBOROUGH (John Churchill, duke of), one of the greatest generals and most famous statesmen of this, or perhaps any, country, was the son of Sir Winston Churchill (distinguished for his attachment to Charles I. and II.), and was born at Ashe, in Devonshire, on Midsummer-day, 1650. He was educated in his father's house under the care of a clergyman: and, when only twelve years old, his father took him to court. He became page and favorite to the duke of York; and, when sixteen years of age, was presented with a pair of colors in the guards. His first actual service was at the siege of Tangier, and from this time he seems to have devoted himself to the military profession. On his return to England, he continued his attendance at court, and received from the king, as well as from the duke, marks of kindness and favor. The duchess of Cleveland made him a present of £5000, with which he immediately purchased an annuity; and his favor with the duke of York was secured by means of his sister, the mistress to that prince. In 1672, the duke of Monmouth commanding a body of English auxiliaries in the service of France, Mr. Churchill attended him, and soon after became captain of grenadiers in his grace's regiment. He was en-

M A R L B O R O U G H.

in all the actions of that campaign, and, at the siege of Nimeguen, so distinguished himself, he obtained the particular notice of marshal Anne. For his conduct at Maestricht he received the public thanks of the king of France; and the duke of Monmouth, in relating to his father what had happened at the attack, acknowledged that he was indebted to captain Churchill both for his glory and his life. On his return home he was promoted to a lieutenant-colonelcy by the king, and the duke made him gentleman of his bedchamber. As a courtier, he now acted his part with great wariness. In 1669 and 1670 he attended the duke of York to the Low Countries, and into Scotland, where he received every respect from the nobility: a regiment of dragoons was at this period given him; and in a short time afterwards he married the beautiful Sarah Jennings, then an attendant upon the princess Anne. In the spring of 1682 he suffered shipwreck with the duke of York in a passage to Scotland. In the same year he obtained other preferments; and, on the accession of James II. to the throne, was sent ambassador to France, to notify the event. In a short time afterwards he was raised to an English peerage by the title of baron Churchill of Sundridge. He now with great prudence avoided public business, and, for a considerable time, hesitated to declare himself. At length, when it was impossible for a person of his rank to remain neuter, he joined in the invitation to the prince of Orange. To obviate the charge of ingratitude, it is generally believed that he had often declared, if the king attempted to overturn the established religion he would leave him. James, however, all this time, had no doubt of his fidelity, and entrusted him with the command of 5000 men to oppose the progress of the prince. When first informed of his disloyalty, the infatuated king gave no credit to the report, till he, with the duke of Grafton and some other officers, withdrew from the royal quarters; and, by his advice, prince George of Denmark and the princess Anne took the same step. Lord Churchill was received with due marks of respect by William, and in the ensuing year was rewarded with the earldom of Marlborough. Having assisted at the coronation of that prince, he was soon after appointed to command the English forces in Holland, and displayed great military talents at the battle of Walcourt: the next year he served in Ireland with his usual reputation. The ensuing campaign he was on the continent, and penetrated the enemy's designs of besieging Mons, in which the Dutch deputies had been deceived. Suddenly he received a message, that the king had no further occasion for his services, followed by his commitment to the tower, on a charge of high treason. He was bailed, and no proceedings were followed up against him, the principal author of the accusation, then a prisoner in Newgate, being convicted of perjury, and punished. It is now, however, believed that a correspondence had been carried on at this time between him and the exiled king. On the death of queen Mary, Churchill was made a privy counsellor, and, in 1698, appointed governor to the duke of Gloucester: when the king is stated to have said to him, 'My lord,

make him but what you are, and my nephew will be all I wish to see him.' He continued, during the remainder of this reign, to receive constant expressions of the royal regard.

On the accession of queen Anne in 1702 the earl of Marlborough was created a duke, had a pension granted him by the queen for her life, and received the thanks of parliament for his conduct. His good fortune was clouded, however, by the loss of an only son, a youth of eighteen, then at Cambridge, when he sought relief in the high duties of his high station. Of his ever-memorable campaigns, it has been said, that he never drew his sword but victory attended him. That of 1704 was, however, so celebrated, that we must be allowed to exhibit it somewhat in detail. Having marched in fifty days from the frontiers of Holland, he arrived, unexpectedly, at the lines of Schellenburgh, defended by 20,000 men, which he instantly attacked, and forced; bringing on the famous battle of Blenheim, or Blenheim, fought August 2nd, between the allied army, under his own command, and that of prince Eugene, and the French and Bavarians, commanded by marshal Tallard and the elector of Bavaria. Nothing could be more complete than the victory of the allies. See **BLENHIM**. The pride of the French monarch received a check which it never recovered; the French were pursued till they crossed the Rhine; Landau was taken, and France itself was put in jeopardy. The substantial expressions of his country's gratitude consisted in the public gift of the honor of Woodstock and hundred of Wotton to his grace, and the erection of a magnificent palace for his abode. The duke employed the latter end of the next year in visiting the courts of Berlin, Hanover, and Vienna, where his talents for negotiation were very useful to the common cause: the emperor Joseph presented him with the principality of Mindelheim, and the title of prince of the empire. At last he was able to meet the French under marshal Villeroy; and on the 11th of May, 1706, gained the decisive battle of Ramillies, followed by the reduction of all Brabant, Antwerp, Ostend, Menin, Dendermonde, and Aeth. The duke was now at the climax of his fame; and a bill was passed to settle his honors on the male and female issue of his daughters.

In 1707 he was opposed to the duke of Vendome, over whom he was able to gain no material advantage, and was much mortified, in a conference at Frankfort, at the coldness of the allies. On returning to England, he had the mortification of finding his duchess supplanted in the affections of her mistress. Once more, in conjunction with prince Eugene, he made, in 1703, a successful campaign against the French, who were commanded by the dukes of Burgundy and Vendome. They were defeated at the battle of Oudenard; Lisle was afterwards invested, and, though it resisted several months, at length surrendered. The duke also recovered Ghent, Bruges, and several places of inferior consideration, taken by the French at the opening of the campaign. Next year, after an abortive negotiation for peace, the duke of Marlborough was opposed to marshal Villars, whom he defeated at the battle of Malplaquet, fought on the 31st of

August. This was one of the most destructive and decisive actions of the war. It cost the allies 18,000 men, killed and wounded: Mons was captured; but the English nation began to be weary of such dear and unprofitable contests: a total breach had also now taken place between the duchess of Marlborough and the queen. The duke took the field again, however, early in 1710, and captured several places of importance; but his visits to England became increasingly mortifying. His influence at court was destroyed, yet he seemed willing to retain his command in the army. At length he was charged, in the house of commons, with peculation, and removed from that command he had so nobly sustained. His enemies, jealous of his power, were determined to heap every possible indignity upon him: no serious charge, however, could be supported; but, to escape the personal mortifications he was exposed to, he paid a visit, in 1712, to the Low Countries. Upon the accession of George I. he was again summoned to court, re-instated in the supreme military command, and his advice was taken and acted upon in the rebellion in 1715. This business was the last in which he engaged. His faculties now began to droop, and at length he sunk into second childhood. This great man died at Windsor Lodge, 16th of June, 1722, leaving behind him a numerous posterity by his four daughters.

MAR'LINE, *n. s.* ? Fr. *merlen*; Belg. *marl-*

MAR'LINESPIKE. *§ ing.* Hemp-wreaths dipped or smeared with pitch: an iron for fastening ropes together.

Some the galled ropes with dawby *marline* bind,
Or searcloth masts with strong tarpawling coats.

Dryden.

MARLOE (Christopher), an English dramatic author, who studied at Cambridge; but afterwards, turning player, trode the same stage with Shakspeare. He wrote six tragedies, one of which, called *Lust's Dominion*, or the Lascivious Queen, was altered by Mrs. Behn, and acted under the title of *Abdelazar*, or the Moor's Revenge. Some time before his death he had made a considerable progress in a poem entitled *Hero and Leander*; afterwards finished by George Chapman. Anthony Wood represents him as a deist, and gives the following account of his death:—Falling deeply in love with a low girl, and having for his rival a fellow in livery, Marloe, imagining that his mistress granted him favors, was fired with jealousy, and rushed upon him in order to stab him with his dagger; but the footman avoided the stroke, and, seizing his wrist, stabbed him with his own weapon; of which wound he died in 1593.

MARLOW, a town of Buckinghamshire, under the Chiltern Hills, in a marly soil. It is a large borough, and has a bridge over the Thames, near its conflux with Wycomb; a handsome church and town hall, and a charity school for twenty boys. It first sent members to parliament in the reign of Edward II. Bone lace is its chief manufacture. The Thames brings goods hither from the neighbouring towns, great quantities of meat and malt from High Wycomb, and beech from several parts of the country. In the neighbourhood are frequent horse races;

and here are several corn and paper mills, particularly on the river Loddon, between this town and High Wycomb. There are, besides, the Temple mills, for making thimbles, and for pressing oil from rape and flax seeds. Its market is on Saturday, and fair October 20th. It is seventeen miles south of Aylesbury, and thirty-one west of London.

MAR'MALADE, *n. s.* Fr. *marmalade*; Port. *marmelada*; Span. *mermelada*: perhaps of Port. *marmels*, a quince. A conserve of oranges or quinces.

Marmalade is the pulp of quinces boiled into a consistence with sugar: it is subastringent, grateful to the stomach. *Quincy.*

MARMARICA, a country of Africa, anciently inhabited by the Lybians. It was bounded on the east by Egypt, on the west by Cyrenaica, on the south by Sahara, or the desert of Lybia Interior, and on the north by the Mediterranean; and was reckoned a part of Egypt. There is no distinct history of the country.

MARMONTEL (John Francis), a celebrated miscellaneous French writer, was born in 1723 at Bort, a small town in the Limousin. The eldest son of a large family, in a humble situation of life, he owed to his mother his early mental cultivation; and by her means he was sent to a Jesuits' College. At the age of fifteen his father placed him with a merchant; but, having expressed his dislike of his situation, he was enabled to obtain admission into the college of Clermont, where he took pupils; and, his father soon after dying, he took upon himself the care of the family. He now engaged as a teacher of philosophy at Toulouse, and became a distinguished candidate for the prizes at the Floral games, which acquired him the notice of Voltaire. At his recommendation he went to Paris in 1745, and after some vicissitudes brought out a tragedy in 1748, which at once raised him to celebrity as an author. The less honorable fame of various amours belongs also to this part of Marмонтel's life: the celebrated actress, mademoiselle Clairon, was the heroine of one of them. Having been recommended to madame Pompadour, he was appointed secretary of the royal buildings, under her brother, the marquis de Marigny, and now wrote his well known tales to assist his friend Boissy, then editor of the *Mercur de France*. On the death of the latter it was given to our author, who resigned for it his post of secretary, and took up his abode with madame Geoffrin. He afterwards lost this paper by repeating in company a joke upon the duke d'Aumont, and was even committed to the bastille, for some days, because he would not give up the author. In 1763, after much vexatious opposition, he succeeded Marivaux as a member of the French Academy. His next production was *Belisaire*, which, in consequence of its liberal sentiments, was censured by the Sorbonne. He now worked up several little stories into comic operas, which were all acted with great success; and was so far restored to favor, that on the death of Duclos, without any solicitation on his own part, he was appointed to succeed him, as historiographer of France. At the age of fifty-four he married a young lady of eighteen. On the

death of d'Alembert, in 1783, he was elected secretary to the academy. On the breaking out of the revolution he was for a short time a member of the electoral assembly; but, his income being diminished, he retired, when the political confusion increased, to a cottage in Normandy. Here he engaged in the composition of a series of tales of a serious cast; together with *Memoirs of his own Life*. In April 1797, he was chosen representative to the National Assembly, for the department of the Eure. But, the election being declared null, he finally retired to his cottage, where he died of an apoplexy in December 1799, in the seventy-seventh year of his age. Marmontel's character has been ably drawn in a modern periodical work. *Edin. Rev.* p. 386, 7.

MARMOSET, *n. s.* Fr. *marmouset*. A small monkey.

I will instruct thee how
To snare the nimble *marmozet*.

Shakspeare. Tempest.

MARMOT, or } Ital. See below.
MARMOTTO, *n. s.* }

The *marmotto*, or *mus alpinus*, as big or bigger than a rabbit, which absconds all winter, doth live upon its own fat. *Ray.*

MARMOTTO, **MARMOTA**, or **MARMOT**, a genus of quadrupeds of the class mammalia, and order of glires, ranked by Linnæus under the genus of mus, or murine quadrupeds, but separated and described as a distinct genus, under the name of arctomys, by Pennant, Gmelin, and Kerr. See **ARCTOMYS**.

MARNE, **THE**, a considerable river of France, which rises about three miles south of Langres, in the department of the Upper Marne; and passing by Chaumont, Joinville, Chalons sur Marne, Epernay, Chateau, Tierny, Meaux, Lagny, and Pont de St. Maur, falls into the Seine at Charenton. This river is navigable from St. Dizier to its mouth; and serves for the transport of the wines of Champagne, vegetables, corn, fruit, hay, timber both whole and in planks, firewood, charcoal, iron, and different sorts of stone. Its course is about 240 miles, in which it receives the Rognon, the Orgain, the Ourcq, the two Morins, and several other streams.

MARNE, a department of France, consists of a great part of the old province of Champagne, and takes its name from the river Marne, which divides it nearly into two equal parts. The principal place of this prefecture is Châlons; it contains five arrondissements or sub-prefectures, Châlons having 36,995 inhabitants; Epernay 83,519; Rheims 108,176; St. Menchould 32,617; and Vitry sur Marne 48,137; comprising a total population of 309,444 souls, on a superficial extent of 3645 square miles. It is in the second military division, yielding a revenue of 16,290,000 francs, belongs to the royal court at Paris, has an archbishopric at Rheims, and is divided into three electoral arrondissements, which send five members to the chamber of deputies. This department is bounded on the north by that of the Ardennes; on the east by that of the Meuse; on the south by those of the Upper Marne and the Aube,

and on the west by those of the Seine-et-Marne and the Aisne.

Two-thirds of the surface of this department present only vast plains, covered with an almost barren soil; attempts have been made for years to plant these chalky and dry lands with wild pines and Scotch firs, and there is some reason to hope that such attempts will succeed, and that one day these immense districts where we scarcely meet with a single shrub, or a few poor withered trees, will be covered with fine woods, that before the end of the century may become a source of great riches to this part of France. The remainder of this country although generally unproductive in corn, yields rye of a tolerably good quality, barley and other small grain, pot herbs and excellent fruit. There are some pools well stocked with fish, and on the banks of the Marne numerous meadows, with extensive forests rising beyond them. The greatest riches of this department, however, consist in its vines, which produce wines justly renowned for their quality, and much in request among all the surrounding nations. These are cultivated in all the arrondissements; but it is in those of Rheims and Epernay that the most esteemed red and white Champagne is made. Their wines are distinguished into those of the river, the best of which are those of Marcuil, Ay, Dizy, &c., and the inferior sorts those of Avenay, Menil, Avise, &c.; and those of the mountain, such as those of Ambonay, Bouzy, Villers, Marmery, &c.; of which those of Sillery are the most esteemed. The soil, which is cultivated with horses, yields a very insufficient supply for its population; there are 81,589 hectares of forest land (chiefly oak and birch), and 20,600 of vineyards, producing twenty francs sixteen centimes per hectare of cultivated ground. The hectare is one-fifth less than an English acre.

Besides the productions already mentioned, there are various sorts of vegetables, onions, melons, mushrooms, white mustard, rape seed, chestnuts, curious plants, hemp, flax, different sorts of forage, game, horses, black cattle, merino and other sheep, cashmere goats, and bees. They have also turf pits and fine quarries of the best millstone in Europe, graystone, chalk, and white and gray potters clay. There is a botanical garden at Châlons. The inhabitants carry on manufactures of woollen counterpanes, cloths, coarse stuffs called eversins, merinoes, flannels, shawls in imitation of cashmere, hats, bolting cloths, horse girths, leather, paper, wax candles, soap, oil, and gingerbread. They have also large woollen and cotton spinning factories, dye houses, potteries of different kinds, glass houses, forges and blast furnaces, as well as chemical laboratories for various acids. There is likewise a royal school for arts and manufactures. A considerable trade is carried on in the above articles, in colonial produce, and wood and charcoal for the supply of the metropolis.

The principal rivers of this department are, the Marne and the Aube navigable; the Aisne, the Suippe, the Vesle, the Aube, the Cole, the Auge, and the Great and Little Morin. It is crossed by the great roads of Troyes, Chaumont, Metz, Laon, and Paris.

MARNE, THE UPPER, a department of France, is formed out of the former province of Champagne, and takes its name from its physical situation, the river Marne rising in it. The chief place of this prefecture is Chaumont, and it is divided into three arrondissements, Chaumont containing 77,295 inhabitants; Langres 94,435; and Vassy 61,528; being a total population of 233,258 souls, on a superficial extent of 2835 square miles. It also contains twenty-eight cantons and 552 communes, forms part of the eighteenth military division, yields a territorial revenue of 13,652,000 francs, has a royal court, or court of the second order, and a bishopric at Dijon, and consists of two electoral arrondissements, sending four members to the chamber of deputies. This department is bounded on the north by that of the Meuse, on the north-west by that of Marne, on the east by that of the Vosges, on the south-east by that of the Upper Saône, on the south-west by that of Côte d'Or, and on the west by that of the Aube.

This country is generally elevated and intersected by many small mountains, at the foot of which several rivers take their rise. Between these are fine valleys abounding in excellent pasturage, plains fruitful in grain of every kind, and small hills covered with vines, that yield tolerably good wine. Forests of considerable extent spread over a great part of this territory; but its principal riches consist in its iron mines, which are both very abundant, and excellent in the quality of the metal; fifty-one blast furnaces, supplied from these mines, are constantly at work, and furnish more than 320,000 quintals of cast iron annually; and these, through the medium of forges, flattening mills, foundries, &c., supply every year 190,000 quintals of forged iron and steel articles, that employ the labor of 6000 workmen. The soil is cultivated with horses, and yields a sufficient supply for its inhabitants, containing 215,910 hectares of forest land, chiefly oak and beech, and 17,600 of vineyards, every hectare of cultivated ground producing about sixteen francs ninety-three centimes.

This country also supplies dry vegetables, turnips, rape seed, black and white mustard, mushrooms, hemp, dyers' weed, gentian, and other plants, cherry and walnut trees, roebucks, stags, wild boars, foxes, wolves, small game, fine fresh-water fish, horses, good milch cows, small sheep renowned for the delicate flavor of their flesh, goats, bees, and turkeys. It has quarries of marble, mock alabaster, grindstones, paving stone, gypsum, potters' clay, marl, pyrites, and turf. Bourbonne les Bains is much frequented on account of its warm springs; and at Montier-en-Der there is a dépôt of standard measures. The inhabitants have manufactories of druggery, leather gloves, knit woollen stockings, much esteemed cutlery, ironmongery, brandy, and wax candles, as well as bleaching houses for wax, woollen yarn factories, brass foundries, vinegar breweries, tanyards, curriers' shops, paper mills, &c. They likewise carry on a considerable trade in all the above articles. The principal rivers that water this department

are, the Marne, which is here navigable, the Meuse, the Aube, the Aujon, the Blaise, and the Rognon; and it is traversed by the great roads of Troyes, Dijon, Besançon, Vesoul, Nancy, and Bar-le-Duc.

MAROBUDUM, in ancient geography, the royal residence of Marobudus, king of the Marcomanni; and hence the appellation. Supposed now to be Prague the capital of Bohemia.

MAROLLES (Michael de), born in 1600, was the son of Claude de Marolles, a French military hero. Michael entered early into the church, and by the interest of his father obtained two abbeys. From 1619, when he published a translation of Lucan, to 1681 the year of his death, he was constantly employed in writing and printing; but his translations of ancient Latin writers, especially the poets, are deficient in taste and spirit. He was certainly, however, a man of great learning, and was one of the first who paid any attention to prints. He collected about 100,000, which made part of the ornaments of the late French king's cabinet; and are now in the National Museum. He wrote memoirs of his own life, which were published by the abbé Goujet, 1755, in 3 vols.

MARONITES, in ecclesiastical history, a sect of eastern Christians, who follow the Syrian rite, and are subject to the pope; their principal habitation being on Mount Libanus. Mosheim says, that the doctrine of the Monothelites, condemned by the council of Constantinople, was adopted by the Mardaites, a people who inhabited Mounts Libanus and Antilibanus, and who about the conclusion of the seventh century, were called Maronites, after John Maro their first bishop, who was originally a monk in the famous convent of St. Maro, upon the banks of the Orontes. Tyrius and others inform us, that the Maronites retained the opinions of the Monothelites until the twelfth century, when, renouncing their doctrines, they were re-admitted, in 1182, into the Roman church. Faustus Nairon, a Maronite settled at Rome, has published an apology for Maron and the rest of his nation. He says that they took their name from Maron, who lived about A. D. 400, and is mentioned by Chrysostom, Theodoret, and in the Menologium of the Greeks. He adds, that the disciples of this Maron spread themselves throughout all Syria; that they built several monasteries, and, among others, one that bore the name of their leader; that all the Syrians who were not tainted with heresy took refuge among them; and that for this reason the heretics of those times called them Maronites. Mosheim says, that the subjection of the Maronites to the spiritual jurisdiction of the Roman pontiff was agreed to, with this express condition, that the pope should not pretend to change or abolish any thing that related to their ancient rites, moral precepts, or religious opinions; so that in reality there is nothing among the Maronites that savors of popery, if we except their attachment to the Roman pontiff, who pays very dear for their friendship. For, as the Maronites live in the utmost poverty, under the tyrannical yoke of the Mahomedans, the pope is under the necessity of furnishing them with such sub-

sides as may appease their oppressors, procure a subsistence for their bishop and clergy, provide for the support of their churches and the exercise of public worship, and contribute in general to lessen their misery. One body, however, of the non-conforming Maronites retired into the valleys of Piedmont, where they joined the Waldenses; another, above 600 in number, with a bishop and several ecclesiastics at their head, fled into Corsica, and implored the protection of the republic of Genoa against the violence of the inquisitors. The Maronites have a patriarch, who resides in the monastery of Cannubin, on Mount Libanus, and assumes the title of patriarch of Antioch, and the name of Peter, as successor of that apostle. He is elected by the clergy and the people, but confirmed by the pope. He observes a perpetual celibacy, as well as the bishops his suffragans; but the rest of the ecclesiastics are allowed to marry before ordination, though the monastic life is in great esteem among them. Their monks are of the order of St. Anthony, and live in the most obscure places in the mountains. As to their faith, they agree principally with the eastern church. Their priests do not say mass singly, but all together, standing round the altar. They communicate in unleavened bread; and the laity partake in both kinds. In Lent they eat nothing after sun-rising: their other fastings are very numerous.

To MAROON, to put one or more sailors ashore upon a desolate island.

MAROS VASARHELY, or SZEKELY VASARHELY, or Neumark, a large town of Transylvania, the capital of the district of Marosch. It is agreeably situated, partly on an eminence surrounded with walls, and partly in an open plain. It has several elegant buildings: among others, the palace of count Teleky, with a library of 60,000 volumes, and a good collection of minerals, which are open to the public. The number of inhabitants is about 10,000, principally Calvinists; and the town is the seat of the college belonging to the Calvinists, founded originally at Weissenburg. It has also a Catholic gymnasium and seminary. Fifty-two miles north-east of Carlsburg.

MAROT (Clement), the first French poet of his age, was born at Cahors in 1495; and was the son of John Marot, valet de chambre to Francis I., and poet to queen Ann of Brittany. He enjoyed his father's post, and in 1521 followed Francis I. into Italy, and was wounded and taken prisoner at the battle of Pavia. On his return to Paris he was accused of heresy, and imprisoned; but delivered by Francis I. He retired to Navarre, and afterwards to Ferrara, and in 1536 returned to Paris; but, declaring for the Calvinists, he was obliged to fly to Geneva: and, retiring to Piedmont, died in Turin in 1544, aged fifty. He translated part of the psalms into verse which were continued by Beza, and are still sung in the Protestant churches abroad.

MARQUARD (Freher), an eminent German civilian, born at Augsburg in 1565. He studied at Bourges; under the learned Cujas; and acquired great skill in literature and law. At his return to Germany, he became counsellor to the

elector palatine, and professor of law at Heidelberg; and was afterwards sent by the elector Frederic IV., as his minister, into Poland, to Mentz, and several other courts. He died at Heidelberg in 1614. He wrote many works which are esteemed; the principal of which are, 1. *De Re Monetaria Veterum Romanorum*, et hodierni apud Germanos Imperii. 2. *Rerum Bohemicarum Scriptores*. 3. *Rerum Germanicarum Scriptores*. 4. *Corpus Historiæ Franciæ*, &c.

MARQUE, or LETTERS OF MARQUE, in military affairs, are letters of reprisal, granting the subjects of one prince or state liberty to make reprisals on those of another. They are so called from the German *marcke*, i. e. limit, frontier: as being *jus concessum in alterius principis marcas seu limites transeundi*, sibi *jus faciendi*; as being a right of passing the limits or frontiers of another prince, and doing one's self justice. Letters of *marque* are also extraordinary commissions granted by authority for reparation to merchants taken and despoiled by strangers at sea; and reprisals are only the retaking, or taking of one thing for another. The form in these cases is, the sufferer must first apply to the lord privy seal, and he shall make out letters of request under the privy seal; and if, after such request of satisfaction made, the party required do not, within convenient time, make due satisfaction or restitution to the party grieved, the lord chancellor shall make him out letters of *marque* under the great seal; and by virtue of these he may attack and seize the property of the aggressor nation, without hazard of being condemned as a robber or pirate.

MARQUESAS, MARQUIS OF MENDOZA'S ISLANDS, or MENDOÇA'S ISLANDS, a cluster of islands discovered by Mendana, a Spanish navigator, in 1595, in the South Pacific Ocean, who named them Marquesas de Mendoza, in honor of Mendoza, viceroy of Peru. Captain Cook touched at them in 1774; and they have been since visited. They consist of five in number: San Pedro, or O-Niteo, in the language of the country; Santa Christina, or Wahitaho; and La Dominica, or O-hivahoa, forming a group; La Madalena, at the distance of eight leagues to the south by east, from the middle of the group; and Hood's Island, distant five leagues and a half from the most eastern point of La Dominica. This group extends from 138° 45' to 140° 30' of W. long., and from 8° 30' to 10° 30' S. lat. They have a bold and almost rugged aspect. Some voyagers represent them as fertile and beautiful in the extreme; while later visitors describe them as high and mountainous, of a barren aspect, and exhibiting numerous volcanic appearances. In most, if not in all of them, there are bays, or coves, which afford harbour for shipping; but access to them is difficult, owing to the frequent sudden squalls of wind. According to captain Cook, the trees, plants, and other productions of these islands are nearly the same as those of the Society Isles. The inhabitants are said to be a beautiful race; but dirty in their habits. Their canoes are very far inferior in structure and appearance to those of the Otahetians, and composed of three pieces, rather rudely wrought, badly sewed together, and leaking

throughout. They are from twenty to thirty feet long, by a foot or eighteen inches broad; their stem being terminated by a projecting piece, which imitates very imperfectly the flattened head of a fish: the stern is formed by two planks four inches in thickness, placed an-end, and rising under the figure of an *S*, elongated and reclined. Sometimes two of these canoes are joined together. The inhabitants have been estimated at about 40,000.

MARQUETRY, or inlaid-work, is composed of pieces of hard fine wood of different colors, fastened in thin slices on a ground, and sometimes enriched with other matters, as tortoise-shell, ivory, tin, and brass. There is another kind of marquetry made, instead of wood, of glasses of various colors; and a third, where nothing but precious stones and the richest marbles are used: but these are more properly called mosaic-work. The art of inlaying is very ancient; and is supposed to have passed from the east to the west as one of the spoils brought by the Romans from Asia. Indeed it was then very simple, nor did it arrive at any tolerable perfection till the fifteenth century among the Italians; it however arrived at its height in the seventeenth century among the French. Till John of Verona, a contemporary with Raphael, the finest works of this kind were only black and white, white are what we now call Marescoes; but he stained his wood with dyes or boiled oils, which penetrated it. He went no farther, however, than representing buildings and perspectives, which require no great variety of colors. Those who succeeded him not only improved his invention of dyeing the wood, by a secret which they found of burning them without consuming, which served exceedingly well for the shadows, but had also the advantage of a number of fine new woods of naturally bright colors, by the discovery of America. With these assistances the art is now capable of imitating almost any thing; whence some call it the art of painting in wood. The wood to be used, being reduced into leaves, of the thickness of a line, is either stained with some color, or made black for shadow; the contours of the piece are formed according to the parts of the design they are to represent. The last is the most difficult part of marquetry, and that wherein most patience and attention are required. The two chief instruments used herein are the saw and the vice; the one to hold the matters to be formed; the other, to take off redundances from the extremes. The vice is of wood, having one of its chaps fixed; the other moveable, and is opened and shut by the foot, by a cord fastened to a treadle. The leaves to be formed (for there are often three or four of the same kind formed together) are put within the chaps of the vice, after being glued on the outermost part of the design whose profile they are to follow: then the workman, pressing the treadle, and thus holding fast the piece, with his saw runs over all the outlines of the design.—By thus joining and forming three or four pieces together, they not only gain time, but the wood is likewise the better enabled to sustain the efforts of the saw; which, how delicate soever it may be, and how lightly soever the workman may conduct it,

without such a precaution would be apt to raise splinters, to the ruin of the work. When the work is to consist of one single kind of wood, or of tortoise-shell, on a copper or tin ground, or vice versa, they only form two leaves on one another, i. e. a leaf of metal, and a leaf of wood, or shell: this they call sawing in counter parts; for, by filling the vacuities of one of the leaves by the pieces coming out of the other, the metal may serve as a ground to the wood, and the wood to the metal. All the pieces thus formed with the saw, and marked to know them again, and the shadow given in the manner already mentioned, they veneer or fasten each in its place on the common ground, using for that purpose the best English glue. The whole is put in a press to dry, planed over, and polished with the skin of the sea dog, wax, and shave-grass, as in simple veneering; with this difference, however, that in marquetry the fine branches, and several of the more delicate parts of the figures, are touched up and finished with a graver.

MARQUIS, *n. s.* } *Fr. marquis; Lat. mar-*

MARQUISATE. } *chio.* In England one of the second order of nobility; next in rank to a duke: Shakspeare uses it for marchioness: the state or dignity of a marquis.

You shall have

Two noble partners with you: the old duchess
Of Norfolk, and the lady *marquess* Dorset.

Shakspeare.

None may wear ermine but princes, and there is a certain number of ranks allowed to dukes, *marquisses*, and earls, which they must not exceed.

Peacham on Drawing.

MARQUIS. The office of a marquis was to guard the frontiers and limits of the kingdom, which were called the marches, from the Teutonic word *marche*, a limit; as, in particular, were the marches of Wales and Scotland, before their union with England. The persons who had command there were called lords marches, or *marquesses*; whose authority was abolished by stat. 27 Hen. VIII. c. 27, though the title had long before been made a mere honor, Robert Vere earl of Oxford, being created marquis of Dublin by Richard II., in the eighth year of his reign. A marquis is created by patent; his mantle is double ermine, three doublings and a half; his title is most honorable; and his coronet has pearls and strawberry leaves intermixed round, of equal height.

MARRACCI (Lewis), a very learned Italian, born at Lucca in 1612. He entered into the congregation of regular 'clerks of the mother of God,' and distinguished himself early by his learning and merit. He taught rhetoric seven years, and attained the knowledge of the Greek, the Hebrew, the Syriac, the Chaldee, and the Arabic; which last he taught at Rome. Pope Innocent XI. chose him for his confessor. He died at Rome in 1700, aged eighty-seven. He was the author of several tracts in Italian; but the work which has made him deservedly famous is his edition of the Koran, with a Latin version, notes, and confutation of his own. It was beautifully printed in 2 vols. folio, at Padua in 1698. His Latin version of it, with notes, and a synopsis of the Mahommedan religion, was published

by Heineccius at Leipsic, 1721, in 8vo. Mar-
racci had also a hand in the *Biblia Sacra Ara-
bica*; Romæ, 1671, in 3 vols. folio.

MARRIAGE, *n. s.*

Fr. *marriage*; Ital.

MARRIAGEABLE, *adj.*

maritaggio; barba-

MARRIAGE-BED, *n. s.*

rous Lat. *maritagium*,

MARRIAGE-CHAMBER,

of Lat. *marito*, to

MARRIAGE-DAY,

} marry. The conju-

MARRIAGE-HOUR,

gal union: marriage-

MARRIAGE-TIE,

able is of age, or fit

MARRIED, *adj.*

to be married: Mil-

MARRY, *v. n. & v. a.* } ton beautifully uses

it for capable of union. See below. Married
is conjugal; connubial; belonging to the mar-
riage state: to marry, to enter into the conjugal
state. The numerous compounds of this word
are obvious in their meaning.

Let them marry to whom they think best.

Numbers xxxvi. 6.

As a mother shall she meet him, and receive him
as a wife married to a virgin. *Eccclus. xv. 2.*

Thou shalt come into the marriage chamber.

Tob. vi. 16.

Have you ever seen pure rose-water kept in a crys-
stal glass? How fine it looks, how sweet it smells,
while the beautiful urn imprisons it! Break the
glass and let the water take its own course; doth it
not embrace the dust, and lose all its former sweet-
ness and fairness? Truly so are we, if we have not
the stay, rather than the restraint of marriage.

Sir P. Sidney.

Neither her worthiness, which in truth was great,
nor his own suffering for her, which is wont to en-
dear affection, could fether his fickleness; but, before
the marriage-day appointed, he had taken to wife
Baccha, of whom she complained. *Sidney.*

You'd think it strange if I should marry her.

Shakspeare.

The marriage with his brother's wife

Has crept too near his conscience. *Id.*

I by the honour of my marriage-bed,

After young Arthur claim this land for mine. *Id.*

When Augustus consulted with Mecænas about
the marriage of his daughter Julia, Mecænas took the
liberty to tell him, that he must either marry his
daughter to Agrippa, or take away his life; there
was no third way, he had made him so great. *Bacon.*

The French king would have the disposing of the
marriage of Bretagne, with an exception that he
should not marry her himself. *Id.*

To those whom death again did wed,

This grave's the second marriage-bed,

For though the hand of fate could force

'Twixt soul and body a divorce,

It could not sever man and wife,

Because they both lived but one life. *Crashaw.*

Some married persons, even in their marriage, do
better please God than some virgins in their state of
virginity: they, by giving great example of conjugal
affection, by preserving their faith unbroken, and by
educating children in the fear of God, please God in
a higher degree than those virgins whose piety is not
answerable to their opportunities. *Taylor.*

There on his arms and once-loved portrait lay,
Thither our fatal marriage-bed convey. *Denham.*

They led the vine

To wed her elm: she spoused, about him twines

Her marriageable arms, and with her brings

Her adopted clusters, to adorn

His nuptial leaves. *Milton.*

Every wedding, one with another, produces four
children, and that is the proportion of children,

which any marriageable man or woman may be pre-
sumed shall have. *Graunt.*

Virgil concludes with the death of Turnus; for,
after that difficulty was removed, Æneas might
marry, and establish the Trojans.

Dryden's Dufrenoy.

I propose that Palamon shall be

In marriage joined with beauteous Emily.

Dryden.

Give me, to live and die,

A spotless maid, without the marriage-tie. *Id.*

Thus have you shunned the married state. *Id.*

I am the father of a young heiress, whom I begin
to look upon as marriageable. *Spectator.*

In a late draught of marriage-articles, a lady sti-
pulated with her husband, that she shall be at li-
berty to patch on which side she pleases. *Id.*

What! shall the curate controul me? Tell him,
that he shall marry the couple himself.

Gay's What d'ye call it.

Virgin, awake! the marriage-hour is nigh. *Pope.*

When the girls are twelve years old, which is the
marriageable age, their parents take them home.

Swift.

Were a man not to marry a second time, it might
be concluded that his first wife had given him a dis-
gust to marriage; but, by taking a second wife, he
pays the highest compliment to the first, by showing
that she made him so happy as a married man, that
he wishes to be so a second time. *Johnson.*

A thousand hearts beat happily; and when

Music arose with its voluptuous swell,

Soft eyes looked love to eyes which spake again,

And all went merry as a marriage-bell;

But hush! hark! a deep sound strikes like a rising
knell! *Byron.*

MARRIAGE is a contract, both civil and religi-
ous, between a man and a woman, by which
they engage to live together in mutual love and
friendship for the ends of procreation, &c. See
MORAL PHILOSOPHY. It is part of the law of
nations, and is in use among all people. The
Romanists account it a sacrament. The first in-
habitants of Greece lived together without mar-
riage. Cecrops, king of Athens, is said to have
been the first author of this honorable institution
among that people. After the commonwealths
of Greece were settled marriage was very much
encouraged by their laws, and the abstaining
from it was discountenanced and in many places
punished. The Lacedæmonians were remarkable
for their severity towards those who deferred
marriage beyond a limited time, as well as to
those who wholly abstained from it. The Athe-
nians had an express law, that all commanders,
orators, and persons intrusted with any public
affair, should be married men. Polygamy was
not generally tolerated in Greece. The time of
marriage varied in different places. The Spar-
tans were not permitted to marry till they arrived
at their full strength, that the children might be
strong and vigorous: and the Athenian laws are
said to have once ordered that men should not
marry till thirty-five years of age. The season
of the year was the winter, and particularly the
month of Gamelion, or January. The Greeks
thought it scandalous to contract marriage within
certain degrees of consanguinity; whilst most of
the barbarous nations allowed incestuous mix-
tures. Most of the Grecian states, especially
such as made any figure, required their citizens.

should match with none but citizens, and the children were not allowed to marry without the consent of their parents. The usual ceremony in promising fidelity was kissing each other, or giving their right hand, which was a general form of ratifying all agreements. Before the marriage could be solemnized the gods were to be consulted, and their assistance implored by prayers and sacrifices, which were offered to some of the deities that superintended these affairs, by the parents or nearest relations of the persons to be married. When the victim was opened the gall was taken out and thrown behind the altar, as being the seat of anger and malice, and therefore the aversion of all the deities who had the care of love, as well as those who became their votaries.

The Romans, as well as the Greeks, disallowed polygamy: a Roman might not marry a woman who was not a Roman. They esteemed the kalends, nones, and ides of every month unlucky for the celebration of marriage, as well as the feast of the parentalia, and the whole month of May. The most happy season in every respect was that which followed the ides of June. The Roman laws speak of second marriages in very hard and odious terms: *Matre jam secundis nuptiis funestata*, L. iii. C. de sec. nuptiis. By these laws it was enacted, that the effects of the husband or wife deceased should pass over to the children, if the survivor should marry a second time. By the law *Hac edictali* (Cod. de sec. nupt.), the survivor, upon marrying a second time, could not give the person he married a portion more than equal to that of the children. In the primitive church the affected respect to chastity was carried so high, that a second marriage was accounted a kind of legal whoredom, or a species of bigamy; and there are some ancient canons which forbid the ecclesiastics from being present at second marriages. Marriage, by the Mosaic law, was subject to several restrictions; thus, by Levit. xviii. 15, a man was forbidden to marry his brother's widow unless he died without issue; in which case it became enjoined as a duty. So he was prohibited to marry his wife's sister, while she was living, ver. 18; which was not forbidden before the law, as appears from the instance of Jacob. The ancient Roman law is silent on this head; and Papinian is the first who mentions it, on occasion of the marriage of Caracalla. The lawyers who came after him stretched the bonds of affinity so far, that they absurdly placed adoption on the same footing with nature.

MARRIAGE-LAWS.—In our general article *LAW* the analysis of the voluminous system of English jurisprudence was necessarily very concise. We now propose to fill up an essential part of the outline, and in the present, and the subsequent articles of *MASTER AND SERVANT*, *PARENT AND CHILD*, &c., to furnish our readers with a compendium of 'the rights of persons in their private relation,' or, in other words, the domestic law. We collect a considerable part of our materials from Sir William Blackstone's Commentaries, which, however, we venture to dispose in a different order, and to which we have added, from the recent acts of parliament, and the numerous reports of cases adjudged in the several

courts of law and equity, a considerable mass of information, that, we trust, will be generally interesting or useful.

SECT. I.—OF THE LEGAL REQUISITES OR MARRIAGE.

The law of England considers marriage in no other light than as a civil contract. The holiness of the matrimonial state is left entirely to the ecclesiastical law. The temporal courts have no jurisdiction to consider unlawful marriage as a sin, but merely as a civil inconvenience. The punishment, therefore, or annulling of incestuous or other unscriptural marriages, is the province of the spiritual courts. Taking it thus in a civil point of view the law treats it as it does all other contracts: allowing it to be good and valid in all cases where the parties at the time of making it were, in the first place, willing to contract; secondly, able to contract; and lastly, actually did contract, in the proper forms and solemnities required by law.

First, They must be *willing* to contract. 'Consensus, non concubitus, facit nuptias,' is the maxim of the civil law in this case: and it is adopted by the common lawyers, who indeed have borrowed (especially in ancient times) almost all their notions of the legitimacy of marriage from the canon and civil laws.

Secondly, They must be *able* to contract; that is, they must labor under no disability or incapacity.

Thirdly, The parties must not only be willing and able to contract, but must *actually contract* themselves in due form of law, to make it a good civil marriage. Any contract made *per verba de presenti*, or in words of the present tense; and, in case of cohabitation, *per verba de futuro* also, between persons able to contract, was formerly deemed a valid marriage to many purposes; and the parties might be compelled in the spiritual courts to celebrate it in *facie ecclesie*. But these verbal contracts are now of no force, to compel a future marriage. Neither is any marriage at present valid, that is not celebrated in some parish church, or public chapel, unless by dispensation from the archbishop of Canterbury. It must also be preceded by publication of banns, or by license from the spiritual judge. Many other formalities are likewise prescribed by the statutes, the neglect of which, though penal, does not invalidate the marriage. It is held to be also essential to a marriage, that it be performed by a person in holy orders, though the intervention of a priest to solemnize this contract is merely *juris positivi*, and not *juris naturalis* aut *divini*. But, as the law now stands, we may upon the whole collect, that no marriage by the temporal law is *ipso facto* void, that is celebrated by a person in orders,—in a parish church, or public chapel (or elsewhere by special dispensation), in pursuance of banns or license, between single persons—consenting,—of sound mind,—and of the age of twenty-one years;—or of the age of fourteen in males and twelve in females, with consent of parents or guardians, or without it in case of widowhood. And no marriage is voidable by the ecclesiastical law after the death of either of the parties; nor during their lives, un

less for the canonical impediments of pre-contract (if that indeed still exists), of consanguinity, and of affinity; or corporal imbecility subsisting previous to the marriage.

We deem it necessary to add, to this general outline, some particulars collected from the several marriage acts which have been passed during the present reign.

1. According to the late act, 4 Geo. IV. chap. 76, the banns must be published in an audible manner in the parish church, or a public chapel belonging to the parish where the parties reside, upon three Sundays preceding the marriage, during the morning service, immediately after the second lesson; or the evening service if there be none in the morning. If the parties reside in different parishes the banns are to be published in both. The names, places, and time of abode of the parties, must be given to the minister seven days prior to the publication.

2. By the 5 & 6 Geo. IV., marriages are declared legal which are solemnized in any other place than the parish church and chapel, to which other place the bishop of the diocese may have granted a license for the solemnization of marriages.

3. If the marriage be not solemnized within three months after the first publication, it is necessary they should be republished. The same period is prescribed in the case of an intended marriage by license.

4. The license can only be granted for the parish or chapelry in which one of the parties has resided for fifteen days next before the granting of the license. One of the parties must personally swear before the surrogate that he or she believes there is no impediment of kindred, or alliance, or any other lawful cause, nor any suit pending to hinder the marriage. It must also be sworn that one of the parties has had his or her usual place of abode for fifteen days immediately preceding the license within the parish or chapelry, where the marriage is to be solemnized. In case either of the parties, not being a widow or widower, is under twenty-one years, it must be sworn that the consent of the person, whose consent is requisite, has been obtained. And, if there be no person having authority to consent, then upon oath to that effect, by the party requiring the license, such license may be granted.

5. By special license, or dispensation, from the archbishop of Canterbury, marriages may be celebrated at a private house, out of canonical hours in the evening, or in other parish churches than where one of the parties resides.

6. The solemnization is prohibited during Lent and on fasting days; but persons may marry under license during Lent although the banns cannot then be published.

7. When the solemnisation has taken place, whether after publication of banns, or under license, it is not only unnecessary to give evidence that the usual place of abode of one of the parties for the time required by the act was in the parish where the marriage took place, but no evidence can be received to the contrary in any suit regarding the validity of such marriage. 4 Geo. IV. chap. 76, sec. 26.

8. Marriages must be solemnized before two

or more credible witnesses besides the minister who celebrates the same. Ibid. sec. 28.

9. Immediately after the celebration of the marriage an entry is to be made in the Register book, in which must be expressed that the marriage was by banns or license, and, if the parties were under age, with consent of the parents, &c.; such entry to be signed by the minister, and by the parties married, and attested by the two witnesses. Ibid.

10. *Gretna Green, and other places in Scotland.*—The marriages which take place there are deemed valid, if the consent of the parties be fairly, and not fraudulently obtained, and if the ceremony be performed according to the mode required by the law of Scotland.

SECT. II.—OF CANONICAL IMPEDIMENTS.

In general all persons are able to contract themselves in marriage, unless they labor under some particular disabilities and incapacities, canonical or civil. Such as are canonical are deemed sufficient by the ecclesiastical laws to avoid the marriage in the spiritual court; but these in our law only make the marriage voidable, and not ipso facto void, until sentence of nullity be obtained. Of this nature are pre-contract, consanguinity, or relation by blood; and affinity, or relation by marriage; and some particular corporal infirmities. And these canonical disabilities are either grounded upon the express words of the divine law, or are consequences plainly deducible from them: it therefore being sinful in the persons, who labor under them, to attempt to contract matrimony together, they are properly the object of the ecclesiastical magistrates' coercion; in order to separate the offenders, and inflict penance for the offence, *pro salute animarum*. But such marriages not being void ab initio, but voidable only by the sentence of separation, they are esteemed valid to all civil purposes, unless such separation is actually made during the life of the parties. For, after the death of either of them, the courts of common law will not suffer the spiritual court to declare such marriages to have been void; because such declaration cannot now tend to the reformation of the parties.

These canonical disabilities being entirely the province of the ecclesiastical courts, our books are perfectly silent concerning them. But there are a few statutes, which serve as directories to those courts, of which it will be proper to take notice. By statute 32 Hen. VIII., c. 38, it is declared, that all persons may lawfully marry, but such as are prohibited by God's law; and that all marriages contracted by lawful persons in the face of the church, and consummated with bodily knowledge, and fruit of children, shall be indissoluble. And (because in the times of popery a great variety of degrees of kindred were made impediments to marriage, which impediments might however be bought off for money) it is declared by the same statute, that nothing (God's law excepted) shall impeach any marriage but within the Levitical degrees; the farthest of which is that between uncle and niece. By the same statute all impediments, arising from pre-contracts to other persons, were abolished and

declared of none effect, unless they had been consummated with bodily knowledge: in which case the canon law holds such contract to be a marriage de facto. But this branch of the statute was repealed by statute 2 & 3 Edward VI. c. 23.

It is to be observed, however, that 4 Geo. IV. c. 76, sect. 27, enacts 'that in no case whatsoever shall any suit or proceedings be had in any ecclesiastical court, in order to compel a celebration of any marriage in facie ecclesie, by reason of any contract of matrimony whatsoever, whether per verba de presenti, or per verba de futuro.' There was a similar provision in the previous general marriage act of 26 Geo. II. c. 33, which Blackstone observes might collaterally extend to revive the clause of Henry VIII.'s statute, and thus abolish the impediment of pre-contract.

Of the prohibited degrees.—Marriage is prohibited under the fourth degree of consanguinity according to the civil law, except in the ascending or descending line. It is scarcely possible, however, that any one should marry his issue in the fourth degree. Between collateral branches, all who are in the fourth, or any higher degree, are permitted to marry. Thus first cousins are in the fourth degree; a nephew and great aunt are in the fourth degree; and, though a man may not marry his grandmother, he may marry her sister.

These rules apply to the same degrees of affinity by marriage; but the affinity must be in a direct line: thus the relations by consanguinity of the husband are not related to those of the wife, and consequently two brothers may marry two sisters; or a father and son a mother and daughter.

SECT. III.—OF CIVIL IMPEDIMENTS.

The other sort of disabilities are those which are created, or at least enforced, by the municipal laws. And, though some of them may be grounded on natural law, yet they are regarded by the laws of the land, not so much in the light of any moral offence, as on account of the civil inconveniences they draw after them. These civil disabilities make the contract void *ab initio*, and not merely voidable; not that they dissolve a contract already formed, but they render the parties incapable of forming any contract at all: they do not put asunder those who are joined together, but they previously hinder the junction. And, if any persons under these legal incapacities come together, it is a meretricious, and not a matrimonial, union.

1. *Prior marriage.*—The first of these legal disabilities is a prior marriage, or having another husband or wife living; in which case, besides the penalties consequent upon it as a felony, the second marriage is of all intents and purposes void.

2. *Want of age.*—This is sufficient to avoid all other contracts, on account of imbecility of judgment in the parties contracting; a fortiori, therefore, it ought to avoid this, the most important contract of any. Therefore if a boy under fourteen, or a girl under twelve years of age, marries, this marriage is inchoate and imperfect; and, when either of them comes to the age of

consent aforesaid, they may disagree and declare the marriage void, without any divorce or sentence in the spiritual court. This is founded on the civil law. But the canon law pays a greater regard to the constitution than the age of the parties; for, if they are habiles ad matrimonium, it is a good marriage, whatever their age may be. And in our law it is so far a marriage, that, if at the age of consent they agree to continue together, they need not be married again. If the husband be of years of discretion, and the wife under twelve years of age, when she comes to years of discretion, he may disagree as well as she may: for in contracts the obligation must be mutual; both must be bound or neither: and so it is vice versa, when the wife is of years of discretion and the husband under.

3. *Want of consent of parents or guardians.*—By the common law, if the parties themselves were of the age of consent, there wanted no other concurrence to make the marriage valid, and this was agreeable to the canon law. But, by several statutes, penalties of £100 are laid on every clergyman who married a couple either without publication of banns (which may give notice to parents or guardians), or without a license, to obtain which the consent of parents or guardians must be sworn to; and, by the 4 Geo. VI. c. 76, persons solemnising marriage, under the pretence of being in holy orders, shall be transported for fourteen years.

By the stat. 4 & 5 P. & M. c. 8, whosoever married any woman child under the age of sixteen years, without consent of parents or guardians, was subject to fine, or five years' imprisonment: and her estate, during the husband's life, went to the next heir. The civil law required the consent of the parent or tutor at all ages; unless the children were emancipated, or out of the parents' power; and, if such consent from the father was wanting, the marriage was null, and the children illegitimate; but the consent of the mother or guardians, if unreasonably withheld, might be redressed and supplied by the judge, or the president of the province; and, if the father was non compos, a similar remedy was given.

Under the act 4 Geo. IV. c. 76, sect. 22, marriages are declared void, in case the persons knowingly and wilfully marry in any other place than a church or chapel where banns may be lawfully published (unless by spiritual license), or knowingly and wilfully, marry without due publication of the banns or license from the proper authority; or, knowingly and wilfully, consent to the solemnisation by a person not in holy orders.

In all other cases of fraud or false swearing, or other irregularity, the marriage itself is valid, though the parties are liable to punishment, and forfeiture of property. Though fraud is sometimes a ground for annulling a marriage, as in the instance of using a false name in the license or publication of banns; yet if the name was not assumed to defraud the other party, or the parents, the fictitious name will not invalidate the marriage.

By the 23d section when a valid marriage is solemnised between parties, under age, contrary to the act, by false oath, or fraud, the guilty party

forfeits, for the benefit of the innocent party, or the issue of the marriage, in such manner as a court of equity may direct, all property accruing from the marriage.

4. *Want of reason.*—Without a competent share of reason, as no other, so neither can the matrimonial contract, be valid. It was formerly adjudged that the issue of an idiot was legitimate, and consequently that his marriage was valid. But modern resolutions have adhered to the reason of the civil law, by determining that the marriage of a lunatic, not being in a lucid interval, was absolutely void. But, as it might be difficult to prove the exact state of the party's mind at the actual celebration of the nuptials, upon this account (concurring with some private family reasons), the stat. 15 Geo. II. c. 30 has provided, that the marriage of lunatics and persons under phrenzies (if found lunatics under a commission, or committed to the care of trustees by any act of parliament), before they are declared of sound mind by the lord chancellor, or the majority of such trustees, shall be totally void.

SECT. IV.—OF MARRIAGES CELEBRATED ABROAD.

By the 4 Geo. IV. chap. 91, sect. 1, marriages solemnised by a minister of the Church of England in the chapel or house of any British ambassador, or minister residing within the country, to the court of which he is accredited, or in the chapel of any British factory abroad, or in the house of a British subject residing at such factory, are declared valid. So also are marriages solemnised within the British lines by any chaplain or officer, or other person officiating under the orders of the commanding officer of a British army serving abroad.

But, in order to affect property in foreign countries, the marriages of British subjects must take place according to the laws of those countries. Thus, in France and the Netherlands, it is necessary that the consent of both the parents, if alive, be given for each party, and, if dead, the certificates of their burial must be duly authenticated by the foreign consul resident in England.

SECT. V.—OF THE DISSOLUTION OF MARRIAGES.

We are next to consider the manner in which marriages may be dissolved; and this is either by death or divorce. There are two kinds of divorce, the one total, the other partial; the one à vinculo matrimonii, the other merely à mensâ et thoro. 1. The total divorce, à vinculo matrimonii, must be for some of the canonical causes of impediment before mentioned; and those existing before the marriage, as is always the case in consanguinity; not supervenient, or arising afterwards, as may be the case in affinity or corporal imbecility. For, in cases of total divorce, the marriage is declared null, as having been absolutely unlawful ab initio; and the parties are therefore separated pro salute animarum: for which reason, as was before observed, no divorce can be obtained, but during the life of the parties. The issue of such marriage as is thus entirely dissolved are bastards. Of late years

divorces à vinculo matrimonii, by reason of adultery, have frequently been granted by act of parliament.

2. Divorce à mensâ et thoro is when the marriage is just and lawful, and therefore the law is tender of dissolving it; but, for some supervenient cause, it becomes improper or impossible for the parties to live together: as in the case of intolerable ill temper* or adultery, in either of the parties. For the canon law, which the common law follows in this case, deems so highly and with such mysterious reverence of the nuptial tie, that it will not allow it to be unloosed for any cause whatsoever that arises after the union is made. And this is said to be built on the divine revealed law; though that expressly assigns incontinence as a cause, and indeed the only cause, why a man may put away his wife, and marry another. The civil law, which is partly of pagan original, allows many causes of absolute divorce; and some of them pretty severe ones (as if a wife goes to the theatre or the public games, without the knowledge and consent of the husband); but among them adultery is the principal, and with reason named the first. But with us in England adultery is only a cause of separation from bed and board: for which the best reason that can be given is, that, if divorces were allowed to depend upon a matter within the power of either of the parties, they would probably be extremely frequent; as was the case when divorces were allowed for canonical disabilities, on the mere confession of the parties, which is now prohibited by the canons.

3. In case of divorce, à mensâ et thoro, the law allows alimony to the wife, which is that allowance which is made to a woman for her support out of the husband's estate; being settled at the discretion of the ecclesiastical judge, on consideration of all the circumstances of the case. This is sometimes called her estovers; for which, if he refuses payment, there is (besides the ordinary process of excommunication) a writ at common law, de estoveris habendis, in order to recover it. It is generally proportioned to the rank and quality of the parties. But in case of elopement, and living with an adulterer, the law allows her no alimony.

SECT. VI.—OF THE RIGHTS AND LIABILITIES CONSEQUENT UPON MARRIAGE.

Having thus shown how marriages may be made and dissolved, we come now to the legal consequences of such making or dissolution. By marriage the husband and wife are one person in law: that is, the very being or legal existence of the woman is suspended during the marriage, or at least is incorporated and consolidated into that of the husband: under whose wing, protection, and cover, she performs every thing; and is therefore called in our law-french

* It is doubtful whether ill temper alone is a sufficient cause for a divorce. Marriage is considered indissoluble, and the courts are not accustomed to interfere, unless there exists something which renders co-habitation unsafe, or likely to be attended with injury to the person, or to the health, of the party applying.

a *feme covert*, *fœmina viro co-operta*, is said to be *covert-baron*, or under the protection and influence of her husband, her baron, or lord; and her condition during her marriage is called her *coverture*. Upon this principle, of a union of person in husband and wife, depend almost all the legal rights, duties, and disabilities that either of them acquire by the marriage.

As to THE HUSBAND. 1. *Of his rights to property*.—The freehold or right of possession of the wife's lands, vests in the husband immediately upon the marriage, but the right of property is still preserved to her. 1 Just. 351.

If the husband survives his wife he may administer, and is entitled for his own benefit to all her chattels real, things in action, trusts, and every other species of personal property, whether actually vested in her and reduced into possession, or contingent, or recoverable only by action or suit.

He may dispose of chattels real during the wife's life, and, if he survives her, they vest in him absolutely; but if he makes no disposition, and she survives, they belong to her.

Where a woman conveys her property before marriage, without the privity of the intended husband, it is fraudulent and may be set aside. 2 Ves. 194. And the husband is entitled to the income of his wife's equitable interest, unless he has received some fortune with her, or has misbehaved, as by running away with a ward of the court. 4 Ves. 15. Where the wife permitted the husband to receive her separate income from time to time, the court will only order an account for one year. 11 Ves. 225.

2. *Of his power*.—The husband (by the old law) might give his wife moderate correction. For, as he is to answer for her misbehaviour, the law thought it reasonable to intrust him with this power of restraining her, by domestic chastisement, in the same moderation that a man is allowed to correct his apprentices or children; for whom the master or parent is also liable in some cases to answer. But this power of correction was confined within reasonable bounds, and the husband was prohibited from using any violence to his wife, *aliter quam ad virum, ex causâ regiminis et castigationis uxoris suæ, licite et rationabiliter pertinet*. The civil law gave the husband the same, or a larger, authority over his wife; allowing him for some misdemeanors, *flagellis et fustibus acriter verberare uxorem*; for others only *modicam castigationem adhibere*. But with us, in the polite reign of Charles II., this power of correction began to be doubted: and a wife may now have a security of the peace against her husband; or in return a husband against his wife. Yet the lower rank of people, who were always fond of the old common law, still claim and exert their ancient privilege, and the courts of law will still permit a husband to restrain a wife of her liberty, in case of any gross misbehaviour.

A man cannot grant any thing to his wife, or enter into covenant with her, for the grant would be to suppose her separate existence; and to covenant with her, would be only to covenant with himself: and therefore it is generally true that all compacts made between husband and wife, when single, are voided by intermarriage.

A woman, indeed, may be attorney for her husband; for that implies no separation from, but is rather a representation of, her lord.

3. *Of his liabilities*.—The husband is bound to provide his wife with necessaries by law, as much as himself; and, if she contracts debts for them, he is obliged to pay them; but, for any thing besides necessaries, he is not chargeable. The husband is also liable to pay the debts of his wife before marriage; for he has adopted her and her circumstances.

And where a husband goes abroad and leaves his wife, who dies in his absence, a third person who voluntarily pays the expenses of her funeral (suitable to the rank and fortune of her husband), though without the knowledge of the husband, may recover from him the money so laid out, especially if such third person be the father of the wife. 1 H. Black. 90. But it is doubtful whether such third person can recover from the husband money which he has expended after the death of the wife in discharging debts which she had contracted in her husband's absence.

The husband must answer for the trespass of his wife: if a *feme covert* slander any person the husband and wife must be jointly sued and execution will be awarded against him. There are instances of a husband being committed to prison till his wife should perform a certain act; but, where he made it appear that he could not prevail on her, he was discharged. 5 Ves. 848.

4. *Of the exceptions to the general liability of a husband*.—He is not liable in an action for the use and occupation of a house by his wife whilst unmarried. 1 Taunt. & B. 50. Nor is he bound to maintain the wife's children by a former husband, though they were maintained by the widow before her second marriage, at which time the second husband acquired her former means. 4 East's R. 76. A husband is not bound to receive, nor is he liable to pay for necessaries found to his wife after she has committed adultery, though he has before committed adultery himself and turned her out of doors without any imputation on her conduct. 6 Terrin. R. 603. But where the wife having committed adultery and the husband left her in his house with two children bearing his name, but without making any provision for her in consequence of the separation, and she continued in a state of adultery, the court of common pleas held that the husband should be liable for necessaries furnished to her, unless it appear that the creditor knew or ought to have known the circumstances under which she was living. 1 Bos. & Pul. 226.

It is a question of fact whether a tradesman, who furnishes goods to a wife, gives credit to her or her husband. If the credit is given to her, the husband is not liable, though the wife lives with him, and he sees her in possession of some of the goods. 5 Taunt. 356. No ill treatment by the husband of the wife, short of personal violence, or such as to induce a reasonable fear of it, will enable a stranger to maintain an action against the husband for necessaries supplied her subsequently to leaving his house. 3 Taunt. 421. If a husband makes his wife an allowance for clothes, &c., which is constantly paid her, it is said he shall not be charged. 1 Sid. 109. And,

if he forbids particular persons to trust her, he will not be chargeable; but a prohibition in general not to trust her, by advertisement in the newspapers, is no legal notice. 1 Vent. 42. If the wife pawn her clothes, and afterwards borrow money to redeem them, the husband is not chargeable, unless he were consenting, or that the first sum came to his use. 2 Show. 283. If she take up goods, and pawn them before made into clothes, the husband shall not pay for them, because they never came to his use; but it is otherwise if made up and worn. 1 Salk. 118.

AS TO THE WIFE. 1. *Of her rights, privileges, and disabilities.*—In the civil law the husband and the wife are considered as two distinct persons; and may have separate estates, contracts, debts, and injuries; and therefore, in the ecclesiastical courts, a woman may sue, and be sued, without her husband.

2. A woman may, before marriage, with the consent of her intended husband, convey all her stock in trade and furniture to trustees, to enable her to carry on her business separately; and if the husband do not intermeddle with them, and there be no fraud, such effects (though fluctuating) are not liable to his debts. But whether the trade be carried on solely by the wife, or jointly with the husband, is a question of fact for the jury; and, if they determine the latter, the stock in trade is liable to the debts of the husband. But, even in such a case, the furniture is not liable, though removed to the husband's house. And it is no objection to such a settlement that there is no inventory of the goods intended to be thus settled. The question in all such cases is, whether the possession is consistent with the deed. 3 Term Rep. 618, 20.

A bond, conditioned for the payment of money, after the obligor's death, made to a woman, in contemplation of the obligor's marrying her, and intended for her benefit, if she should survive, is not released by their marriage.

3. A wife may sue a supplicavit in Chancery against her husband, and to find sureties not to beat or evil intreat her. 13 East. 172, n. And, where there are articles of separation between the husband and wife, if the husband afterwards confine her, she may have a habeas corpus, and be set at liberty. 13 East. 173, n.

4. Though our law in general considers a man and wife as one person, yet there are some instances in which she is separately considered as inferior to him, and acting by his compulsion. And therefore all deeds executed and acts done by her, during her coverture, are void, except it be a fine, or the like matter of record, in which case she must be solely and secretly examined to learn if her act be voluntary. She cannot by will devise lands to her husband, unless under special circumstances; for at the time of making it she is supposed to be under his coercion. And in some felonies, and other inferior crimes, committed by her, through constraint of her husband, the law excuses her; but this extends not to treason or murder.

5. If the wife be injured, in her person or her property, she can bring no action for redress without her husband's concurrence, and in his name, as well as her own; neither can she be sued, without

making the husband a defendant. There is indeed one case where the wife shall sue, and be sued, as a feme sole, viz. where the husband has abjured the realm, or is banished; for then he is dead in law; and the husband being thus disabled to sue for, or defend the wife, it would be most unreasonable if she had no remedy, or could make no defence at all.

6. But in trials of any sort they are not allowed to be evidence for, or against, each other; partly, because it is impossible their testimony should be indifferent; but principally because of the union of person; and, therefore, if they were admitted to be witnesses for each other, they would contradict one maxim of law, 'nemo in propria causa testis esse debet;' and, if against each other, they would contradict another maxim, 'nemo tenetur seipsum accusare.' But, where the offence is directly against the person of the wife, this rule has been usually dispensed with; and, therefore, by statute 3 Hen. VII. c. 2, in case a woman be forcibly taken away and married, she may be a witness against such her husband, in order to convict him of felony. For in this case she can with no propriety be reckoned his wife; because a main ingredient, her consent, is wanting to the contract; and also there is another maxim of law, that no man shall take advantage of his own wrong; which the ravisher here would do, if, by forcibly marrying a woman, he could prevent her from being a witness, who is perhaps the only witness, to that very fact.

Neither the husband nor wife can be called in any case to give evidence even tending to criminate each other. Thus in a case of settlement, where a marriage in fact had been proved between two paupers, the first wife of the husband is not a competent witness to prove a former marriage with him, because such evidence shows him to have been guilty of bigamy. But husband and wife may prove their own marriage on a question of settlement. 2 Term. R. 263.

The point is at least doubtful whether a woman living with a man as his wife, and having children by him, be admissible evidence to prove the fact of her never having been actually married to him. 1 Price, 81.

7. A feme covert was discharged out of custody, because she was arrested without her husband, though the writ was sued out against both, on which the sheriff had returned, that the husband was not to be found. 1 Term. R. 486. And a married woman, arrested on common process, is entitled to be discharged out of custody on filing common bail, although her husband had absconded, and the debt had been incurred by her while a feme sole. 1 Barn. & A. 165. So if she be held to bail (for the penalties incurred by insuring in the lottery) she may be discharged on an affidavit of her coverture. 2 H. Black. 17. And the court will discharge a woman under arrest, if the plaintiff knew her to be covert at the time of contracting the debt. 6 Term. R. 451. Or if she mistakenly allege she believes her husband to be dead. 1 East. 16. Or if the plaintiff knew she had a husband living abroad, though under terms of separation. 1 East. 17, note. And

the common pleas will now discharge a feme covert, though she contracted the debt as a feme sole, and was trusted by the plaintiff as such, unless she represent herself to be single. 1 New. R. 54.

8. A feme covert cannot be sued as a feme sole, unless she be separated from her husband and have a fixed certain allowance secured to her as a maintenance. 5 Term R. 679. If a woman married de facto to one whom she knows to have another wife, executes a deed as his wife, jointly with him, she is bound as a feme sole. 3 Aust. 833. Where the husband (a foreigner) resided abroad, and the wife traded and obtained credit in this country as a feme sole, the common pleas held that she was liable for her own debts. 1 Bos. & P. 357. It has been solemnly determined in the exchequer chamber, that a feme covert sole trader, in the city of London, is not liable to be sued as such in the courts at Westminster; and, even in the city courts, the husband must be joined for conformity. 2 Bos. & P. 93. Where a married man was transported for felony, the king's bench decided that the wife might be sued alone for a debt contracted after the transportation. 1 Term R. 9.

9. The wife of an attorney is not entitled to be discharged out of custody on mesne process, if arrested with her husband. 1 Taunt. 254. Nor will the court discharge a woman under arrest, as being married, if she obtained credit pretending that she was single. 5 Term. R. 191. And in the following case the court of common pleas refused to discharge the woman, although the plaintiff appeared to have been acquainted with her coverture:—a French-woman and her husband came over to England; the husband gave her a power of attorney, and went to Ham-burgh; she cohabited with another man, and traded on her own account with the plaintiff, by whom she was arrested. 1 Bos. & P. 8. Where a married woman has been arrested as acceptor of a bill of exchange, at the suit of an indorser, the common pleas will not order the bail bond to be cancelled, on an affidavit that the drawer, when he drew the bill, knew the defendant to be a married woman. 2 Marsh. 40. And in another case, where a woman was arrested as drawer of a bill of exchange at the suit of an indorser, that court refused to discharge her on the affidavit of a third person that she was a married woman. 2 Marsh. 385.

Effect of marriage on previous wills.—Marriage, and the birth of a posthumous child, amount to an implied revocation of a will of lands made before marriage. But the subsequent birth of a child is not of itself sufficient. 5 Term R. 49, 51. And where after marriage a man made his will, and devised to his niece, and afterwards died, leaving his wife ensient with a daughter, which was unknown to him, it was held that the birth of a daughter was not a revocation of the will. 4 Maule & S. 10.

SECT. VII.—OF INJURIES TO THE HUSBAND.

1. *By abduction.*—The abduction, or taking a man's wife either by fraud and persuasion, or open violence, is remediable by action of tres-

pass, or writ of ravishment. The offender, according to 3 Edw. I. c. 13, may be imprisoned two years, and fined. Damages may also be recovered in an action on the case at the suit of the husband against those who persuaded or enticed the wife to live separate from him without sufficient cause.

2. *By criminal conversation.*—For this injury an action can be maintained, and though, according to the technical form of the proceedings, the injury is described to consist in the loss of the society and services of the wife, the jury, sanctioned by the concurrence of the courts, are accustomed to measure the damages by all the circumstances which have accompanied the act complained of; many of which relate to the moral conduct of the husband and wife previously to the commission of the offence.

There are some instances in which the husband is altogether deprived of his remedy for the injury sustained.

Thus no action for crim. con. can be brought for any act of adultery after a separation between husband and wife. 5 Term R. 357. But according to another case, where there was a settlement providing previously to the marriage for the maintenance of the wife in case of separation, it was held that the husband was not precluded from maintaining an action for adultery committed while the wife was in fact living apart from him. 6 East 244.

It is now determined that, if the husband consent to the adultery, it will bar the action. And, if the woman is suffered by her husband to live as a common prostitute, no action will lie at the suit of the husband; but, if he does not know this, it will go only in mitigation of damages. 4 Term R. 657.

SECT. VIII.—OF FORCIBLE AND CLANDESTINE MARRIAGES, BREACH OF CONTRACT TO MARRY, &c.

1. *Of forcible marriages.*—According to the statute 3 Hen. VII. c. 2, if any person shall for lucre take any woman, being maid, widow, or wife, and having substance either in goods or lands, or being heir apparent to her ancestors, contrary to her will; and afterwards she be married to such misdoer, or by his consent to another, or defiled; such person, his procurers, and abettors, and such as knowingly receive such woman, shall be deemed principal felons.

By the 39 Eliz. c. 9, such felons were denied the benefit of clergy. But this act is repealed by 1 Geo. IV. c. 115, and persons convicted on the statute of 3 Hen. VII. are to be transported for life, or any term not less than seven years; or imprisoned with or without hard labor for any term not exceeding seven years.

The indictment for this offence must allege that the taking was for lucre. In order to show this, it must be proved that the woman has substance either real or personal, or is an heir apparent. It must appear she was taken away against her will. And lastly that she was afterwards either married or defiled. Though the marriage or defilement might be by her consent, yet it is felony if the first taking were against her will. And so if she originally consent, but

afterwards refuse to continue, and be forced against her will, the construction of law is the same as if she had never consented.

2. *Of clandestine marriages.*—Persons who knowingly solemnise matrimony in any other place than where banns may be lawfully published, or at any other time than between the hours of eight and twelve in the forenoon, unless by special license, or solemnise matrimony without publication of banns, unless a license be obtained, or persons falsely pretending to be in holy orders and solemnising matrimony, are deemed guilty of felony, and liable to be transported for fourteen years; and the parties are punishable at common law, independently of the statute.

Although where the parties are under age, and have not been previously married, it is necessary the parent or guardian should consent to the marriage; yet if the banns have been regularly published, though without the consent of parents or guardians, and the minister has received no notice of dissent, the minister who solemnises the marriage is not punishable. The banns, however, are void, if the dissent be publicly declared.

3. *Of breach of promise of marriage.*—For the breach of mutual promises to marry each other, made between unmarried persons, an action will lie. But a promise by one party to pay a sum of money in case he or she shall marry another, is held to be a restraint of marriage, and consequently void: and a wager for fifty guineas that the party would not marry within six years was held to be void on the same principle. It is observable, however, that upon mutual promises between a minor and an adult, the former, though not bound by the promise, may maintain an action against the latter.

These contracts need not be in writing, unless they extend to an agreement to pay money, or make a settlement in consideration of marriage.

4. *Sale of wives.*—The practice which is frequently tolerated of a man selling his wife, with a halter round her neck, is clearly a misdemeanor, and all parties are liable to punishment by fine and imprisonment. Lord Mansfield directed a prosecution where a husband had assigned his wife over to another man on the ground that such a transaction was contrary to decency and good manners.

MARROW, *n. s.*

MARROWBONE, *n. s.*

MARROWLESS, *adj.*

Sax. *mōnz*, me-

nepe; Swed. *marg*;

Dan. *marb*; Welch,

mer; all, perhaps, of Heb. מַרְרָה, to strengthen. The oleaginous substance, or pith, of the bones.

Though buying and selling doth wonderful wel,

Yet chopping and changing I cannot commend

With thee or his marrow for fear of ill end. *Tusser.*

Would he were wasted, marrow, bones, and all,
That from his loins no hopeful branch may spring.

Shakspeare.

Avant!

Thy bones are marrowless, thy blood is cold;

Thou hast no speculation in those eyes

Which thou dost glare with. *Id. Macbeth.*

The skull hath brains and kind of marrow within
it: the back-bone hath one kind of marrow, —
and other bones of the body have another: the jaw-

bones have no marrow severed, but a little marrow diffused.

Pampered, and edified their zeal

With marrow puddings many a meal. *Hudibras.*
Down on your marrow-bones, upon your allegiance; and make an acknowledgment of your offences; for I will have ample satisfaction.

Dryden's Spanish Fryar.

Upon this he fell down upon his marrowbones, and oegged of Jupiter to give him a pair of horns.

L'Estrange.

He bit the dart, and wrenched the wood away,
The point still buried in the marrow lay. *Addison.*

All the bones of the body which have any considerable thickness have either a large cavity, or they are spongy, and full of little cells; in both the one and the other there is an oleaginous substance, called marrow, contained in proper vesicles or membranes, like the fat: in the larger bones this fine oil, by the gentle heat of the body, is exhaled through the pores of its small bladders, and enters some narrow passages, which lead to some fine canals excavated in the substance of the bone, that the marrow may supply the fibres of the bones, and render them less apt to break. *Quincy.*

MARRUBIUM, white horehound, a genus of the gymnospermia order, and didynamia class of plants; natural order forty-second, verticillate: CAL. salver-shaped, rigid, and ten-riated: cor. upper lip bifid, linear, and straight. There are nine species, the most remarkable of which is the

M. vulgare, a native of Britain, growing naturally in waste places, and by way sides near towns and villages, but not common. It has a strong and somewhat musky smell, and bitter taste. It is reputed attenuant, and resolvent; an infusion of the leaves in water, sweetened with honey, is recommended in asthmatical and phthical complaints, and most other diseases of the breast and lungs.

MARS, in astronomy, one of the six planets, and of the four superior ones; its place being between the earth and Jupiter. See ASTRONOMY.

MARS, in mythology, the god of war. He was, according to some, the son of Jupiter and Juno; while others say that he was the son of Juno alone, who, being displeased at Jupiter's having produced Minerva from his brain, conceived, without the assistance of the other sex, by touching a flower shown to her by Flora in the plains of Olenus, and became the mother of this formidable deity. The amours of Mars and Venus, and the manner in which Vulcan caught and exposed them to the laughter of the other gods, have been described by several of the ancient poets. He is represented as having several wives and mistresses, and a considerable number of children. He was held in the highest veneration by the Romans, both from his being the reputed father of Romulus their founder, and from their inclination to conquest; and magnificent temples were erected to him at Rome. Mars is usually represented in a chariot, drawn by furious horses. He is completely armed, and extends his spear with the one hand, and grasps a sword, imbrued in blood, with the other. He has a fierce and savage aspect. Discord is represented preceding his car; and Clamor, Fear, and Terror, appear in his train. The victims sacrificed to him were the wolf,

the horse, the wood-pecker, the vulture, and the cock.

MARS, among alchemists, denotes iron; that metal being supposed to be under the influence of the planet Mars.

MARSAIS (Cesar Chesneau du), was born at Marseilles in 1676. He became a member of the congregation of the oratory, but soon left it and went to Paris, where he married, and became advocate, in which profession he met with great success. Disappointed, however, in his expectations of making a speedy fortune, he abandoned the law also. He next became tutor in several families; and after this he kept a boarding academy, but was at last reduced to extreme indigence. In this situation he was found by the editors of the *Encyclopédie*, and made a partner in conducting that great work; for which he wrote the article *Grammaire*, and several others. The count of Lauraguais was so much affected with the distresses, and so much convinced of the merit of Du Marsais, that he procured him a pension of 1000 livres. Du Marsais died in Paris, June 11th, 1756, in his eightieth year, after he had received the sacrament; though during his life he had been a professed deist. His principal works are, 1. *Exposition de la Doctrine de l'Eglise Gallicane par rapport aux Pretensions de la Cour de Rome*, 12mo. This did not appear till after his death. 2. *Exposition d'une Methode Raisonnée pour apprendre la Langue Latine*, 12mo. 1722, rare. 3. *Traité des Tropes*, 1730, 8vo.; reprinted in 1771, 12mo. 4. *Les Veritables Principes de la Grammaire raisonnée pour Apprendre la Langue Latine*, 1790, 4to. There was only the preface of this work published, in which he introduced the greatest part of his *Methode Raisonnée*. 5. *L'abiege de la Fable du Pere Jouvenci*, arranged after the manner of the original plan, 1731, 12mo. 6. *Logique, ou Reflexions sur les operations de l'Esprit*. It was reprinted in Paris, in two parts, together with the articles which he had written for the *Encyclopédie*, 1762. He also wrote some tracts, of less merit, in favor of scepticism.

MARSALA, a town of Sicily, in the Val di Mazzara, at the western extremity of the island, on the promontory of Lilybæum. It is supposed to occupy the site of the ancient town of this name, and is tolerably well built, having a spacious street, called the Cassaro. It is surrounded with a wall and dry ditch, flanked by bastions. There was formerly a good harbour here, destroyed in 1562, to prevent its affording shelter to the Turkish galleys. It exports wine, barilla, oil, and wheat. Inhabitants 10,000. Forty-five miles south-west of Palermo.

MARSEILLE, or MARSEILLES, formerly Massilia, a very ancient, large, and beautiful city, the chief place of the department of the Mouths of the Rhone, in the south-east of France. It has a lower court, and is the seat of the royal court of Aix, besides a tribunal of commerce and an exchange; is the chief place of the eighth military division, and the residence of different foreign consuls, has a royal marine observatory, an academy of sciences, a school of hydrography, and an institution for the deaf and

dumb, a royal college, a school of medicine, another for drawing, and a third for music; as well as a free course of lectures on chemistry. It is the see of a bishop, and has also a reformed consistorial court, and a synagogue. It is a post town, containing 116,000 inhabitants. This city is situated at the bottom of a gulf covered and defended by several islands, on the declivity and at the foot of a hill between the sea and a chain of mountains, forming a semicircle, and enclosing a rich valley, with more than 5000 houses. The elevated part of the town between the port and the race ground, is but indifferently built; but the new town, which reaches nearly to the sea, and forms about one-third of the whole, is very beautiful; all the streets are broad, straight, and bordered with foot pavements and elegant houses. Marseilles is furnished with many beautiful squares and fountains; the town-hall near the port, the port itself, the magnificent quays that run along it, the exchange, the arsenal, the assembly room, and the rope-yard, are especially worthy of attention. From the top of the observatory, one of the finest buildings in Marseilles, a most extensive view is presented to the eye, taking in at once the city, the surrounding country, and the sea. On the coast, at a little distance, is the hospital, one of the largest and best regulated buildings of the kind; it is enclosed with a double wall, and seems like a small town: on the return of the expedition from Egypt it received within its enclosure a whole army. The port is one of the finest in the kingdom, and is capable of containing 1200 vessels; it forms an oval basin of nearly 600 fathoms in length, by about 160 in breadth, and presents a haven for every kind of ship that navigates the Mediterranean. Here the colors of every nation may be seen flying, and the inhabitants of various parts of the world in their different costumes.

This city is said to have been founded by the Phœceans, about 500 years before the Christian era, and soon became one of the most commercial cities in the west, renowned for its government, and the wisdom of its laws. Cicero styled it the Athens of Gaul, and Pliny the mistress of the sciences. Julius Cæsar took it after a long and terrible siege. In the year 473 the Saracens sacked it; but it was re-united to the French crown by Clotaire, and afterwards became a separate sovereignty. It shook off the yoke and became a republic in 1214, but it enjoyed its liberty only till 1251, when the counts of Provence subjected it to their dominion. Louis XII. united it to the crown again in 1482. Louis XIV., taking a journey into Provence in 1660, deprived it of some of the privileges it had enjoyed until his reign, and built a citadel. In 1720 a vessel from Seide introduced a horrible plague, which carried off between 60,000 and 70,000 of its inhabitants.

The principal manufactures are those of stockings and Tunis caps, soap, olive oil, brandy, spirits, choice liqueurs, glue, white lead, chemicals, perfumery, wax candles, and straw hats. Cotton spinning, sugar refining, the preparation of sulphur, starch making, tanning, and the manufacture of tobacco, are also pursued to a

considerable extent; and the inhabitants have an import and export trade with Italy, Spain, the coasts of Africa, the Levant, and the different ports of the Black Sea and the Mediterranean; as well as with America and the East Indies. This city had the honor of giving birth to Petronius, Honoré d'Urfé, author of the *Astrea*; to Paget, a famous painter and sculptor; to Damarsais; to M. Pastoret, the president of the legislative assembly; to general Gardane; and to Lantier, a well-known literary character. There are here a library of 60,000 volumes, a picture gallery and museum of natural history, a royal botanical garden, and many ancient monuments. This city is situated in long. 3° 2' E. from Paris, and in lat. 43° 17' N.; being about 615 miles south-east of Paris, 162 south-west of Nice, forty-five W.N.W. of Toulon, 126 E.S.E. of Montpellier, eighty-seven south-east of Nîmes, and eighty-one south-east of Avignon.

MARSH, *n. s.* } Sax. *meþre*. See MARISH.
MARSHY, *adj.* } A fen; bog; swamp; watery ground.

In their courses make that round,
In meadows and in *marshes* found,
Of them so called the fayry ground,
Of which they have the keeping. *Dryden.*

We may see in more continuous climates great variety in the people thereof; the up-lands in England yield strong, sinewy, hardy men; the *marsh-lands*, men of large and high stature. *Hale.*

Worms for colour and shape, alter even as the ground out of which they are got; as the *marsh* worm and the stag worm. *Walton.*

Though here the *marshy* grounds approach your fields,

And there the soil a stony harvest yields. *Dryden.*
Feed

With delicates of leaves and *marshy* weed. *Id.*
Your low meadows and *marsh* lands you need not lay up till April, except the spring be very wet, and your *marshes* very poachy. *Mortimer's Husbandry.*

It is a distemper of such as inhabit *marshy*, fat, low, moist soils, near stagnating water. *Arbuthnot.*

The fens and *marshes* are his cool retreat,
His noon-tide shelter from the burning heat. *Young.*

MARSH (Narcissus), a learned and accomplished prelate, born at Hannington in Wiltshire, in 1638. He was made principal of St. Alban's Hall, Oxford, in 1673; provost of Dublin College in 1678; bishop of Leighlin and Ferns in 1682; archbishop of Cashel in 1690; of Dublin in 1694, and of Armagh in 1703. He built a public library in Dublin, filled it with choice works, and settled a provision for two librarians. He repaired, at his own expense, several decayed churches, besides buying in many impropriations, and presenting a great number of oriental MSS. to the Bodleian library. He was well versed in sacred and profane literature, in mathematics, natural philosophy, languages (especially the oriental), and music. He published, 1. *Institutiones Logicæ*. 2. *Manuductio ad Logicam*, written by Philip de Trieu; to which he added the Greek text of Aristotle, and some tables and schemes. 3. An introductory essay on the doctrine of sounds, &c. He died in 1713.

MARSHAL, *n. s. & v. a.* Fr. *marschal*; low Lat. *marscallus*, according to Minshew, from old Fr. *marscale* (compounded of *mare*, a horse,

and scale, a sort of servant); one that has the charge of horses. Dr. Johnson adopts this etymology. A chief officer of arms; any one who regulates feasts or combats; to marshal, to array in formal or military order; to lead.

Her face, when it was fairest, had been but as a *marshal* to lodge the love of her in his mind, which now was so well placed as it needed no help of outward harbinger. *Sidney.*

Through the hall there walked to and fro

A jolly yeoman, *marshal* of the same,

Whose name was Appetite; he did bestow

Both guests and meats, whenever in they came,

And knew them how to order without blame. *Faerie Queene.*

Thou *marshal'est* me the way that I was going. *Shakspeare.*

The duke of Suffolk claims

To be high steward; next the duke of Norfolk

To be earl *marshal*. *Id.*

Multitude of jealousies, and lack of some predominant desire, that should *marshal* and put in order all the rest, maketh any man's heart hard to find or sound. *Bacon.*

Anchises looked not with so pleased a face,

In numbering o'er his future Roman race,

And *marshalling* the heroes of his name,

As in their order next to light they came. *Dryden.*

Dares their pride presume against my laws

As in a listed field to fight their cause?

Unasked the royal grant; no *marshal* by,

As kingly rights require, nor judge to try. *Id.*

O William, may thy arms advance,

That he may lose Dinant next year,

And so be *marschal* of France. *Prior.*

It is as unconceivable how it should be the directrix of such intricate motions, as that a blind man should *marshal* an army. *Glanville's Scipis.*

Dryden was the great refiner of English poetry, and the best *marshaller* of words. *Trapp.*

Behold

Destruction yawns; his spacious jaws unfold,
And, *marshalled* round the wide expanse, disclose
Teeth edged with death, and crowded rows on rows. *Young.*

I cannot consider all these things without blessing that wise and beneficent policy, which brought England with timely speed to the aid of such a nation, to call forth its energies—to *marshal* its resources—to support and invigorate its unyielding constancy, and, after its own deliverance was achieved, to lead it forth in pursuit of its oppressor. *Canning.*

MARSHAL, or MARESCHAL (*marscallus*), primarily denotes an officer who has the care or the command of horses. Nicod derives the word from polemarchus, i.e. master of the camp; Matthew Paris from Martis senecallus. In the old Gaulish language march signified horse; whence *marsh* might signify him who commanded the cavalry. Other derivations have been given by different authors; and the name itself has been applied to officers of very different employments.

MARSHAL OF ENGLAND, EARL, is the eighth great officer of state. This office, until it was made hereditary, always passed by grant from the king, and never was held by tenure or seignior (by any subject), as the offices of lord high steward and lord high constable were sometimes held. The title is personal, the office honorary and officinary. They were formerly styled lord marshal only, until king Richard II., June 20th

1397, granted letters patent to Thomas Mowbray, earl of Nottingham, and to the heirs male of his body lawfully begotten, by the name and style of earl-marshal; and further gave them power to bear in their hand a gold truncheon, enamelled with black at each end: having at the upper end of it the king's arms engraven thereon, and at the lower end his own arms. See CHIVALRY.

MARSHAL OF SCOTLAND, EARL. His office was to command the cavalry, whereas the constable commanded the whole army. They seem, however, to have had a sort of joint command, as of old all orders were addressed 'to our constable and marischal.' The office of earl marischal has never been out of the noble family of Keith. It verged in the crown, being forfeited by the rebellion of George Keith, earl marischal, in 1715.

MARSHAL OF THE KING'S BENCH, an officer who has custody of the king's bench prison, in Southwark. He gives attendance upon the court, and takes into his custody all prisoners committed by the court; he is finable for his absence, and non-attendance incurs a forfeiture of his office. The power of appointing the marshal of the king's bench is in the crown.

MARSHAL OF THE KING'S HOUSE, or knight marshal, an English officer, whose business, according to Fleta, is to execute the commands and decrees of the lord steward, and to have the custody of prisoners committed by the court of verge. Under him are six marshal's men, who are properly the king's bailiffs, and arrest in the verge of the court, when a warrant is backed by the board of green-cloth. The court where causes of this kind, between man and man, are tried, is called the marshalsea, and is under the knight marshal. See MARSHALSEA. This is also the name of the prison in Southwark: the reason of which may probably be, that the marshal of the king's house was wont to sit there in judgment, or keep his prison.

MARSHAL (Thomas), a learned English divine in the seventeenth century, educated at Oxford. This city being garrisoned, upon the breaking out of the civil wars, he bore arms for the king. He afterwards had several successive preferments in the church; and died in Lincoln College, of which he was rector. By his will he left all his books and MSS. to the University of Oxford, and money to Lincoln College for the maintenance of three scholars. He was a noted critic, especially in the Gothic and Anglo-Saxon tongues; and eminent for his piety. He wrote, 1. *Observationes in Evangeliorum Versiones per antiquos duos, Goth. scilicet et Anglo-Sax., &c.* 2. *Notes on the Church Catechism, &c.*

MARSHALL (Stephen) a presbyterian divine, of some eminence in the middle of the seventeenth century. He was born at Godmanchester, in Huntingdonshire, and was educated at Emanuel College, Cambridge, where he took the degrees of B. A. and B. D. He became minister of Finchfield in Essex; but, on the triumph of the puritan party, settled in London. The quaint Fuller says, 'In the late long lasting parliament, no man was more gracious with the principal members thereof. In their sickness

he was their confessor, in their assembly their counsellour, in their treaties their chaplain, in their disputations their champion.' He died in 1655, and was buried in Westminster Abbey. He was one of the authors of *Smectymnuus*, and wrote a *Treatise on Justification*, which is still read.

MARSHALLING A COAT, in heraldry, is the disposal of several coats of arms belonging to distinct families in one and the same escutcheon or shield, together with their ornaments, parts, and appurtenances.

MARSHALSEA, THE COURT OF, and the palace court at Westminster, though two distinct courts, are frequently confounded together. The former was originally holden before the steward and marshal of the king's house, and was instituted to administer justice between the king's domestic servants, that they might not be drawn into other courts, and thereby the king lose their service. It was formerly held in the aula regis; and, when that was subdivided, remained a distinct jurisdiction, holding plea of all trespasses committed within the verge of the court, where only one of the parties is in the king's domestic service (in which case the inquest shall be taken by a jury of the country); and of all debts, contracts, and covenants, where both of the contracting parties belong to the royal household; and then the inquest shall be composed of men of the household only. By act of 13 Rich. II. stat. 1, c. 3. (in affirmance of the common law), the verge of the court in this respect extends for twelve miles round the king's place of residence. And, as this tribunal was never subject to the jurisdiction of the chief justiciary, no writ of error lay from it (though a court of record) to the king's bench, but only to parliament, till the statutes of 5 Edw. III., c. 2, and 10 Edw. III., stat. 2, c. 3. which allowed such writ of error before the king in his place. But this court being ambulatory, and obliged to follow the king in all his progresses, so that, by the removal of the household, actions were frequently discontinued, and doubts having arisen as to the extent of its jurisdiction, king Charles I., in the sixth year of his reign, by his letters patent, erected a new court of record, called the curia palatii, or palace-court, to be held before the steward of the household and knight marshal, and the steward of the court, or his deputy; with jurisdiction to hold plea of all manner of personal actions whatsoever, which shall arise between any parties within twelve miles of his majesty's palace at Whitehall. The court is now held once a week, together with the ancient court of marshalsea, in the borough of Southwark; and a writ of error lies from thence to the court of king's bench. But, if the cause is of any considerable consequence, it is usually removed on its first commencement, together with the custody of the defendant, either into the king's bench or common pleas, by a writ of habeas corpus cum causa; and the inferior business of the court has of late years been much reduced by the new courts of conscience erected in the environs of London; in consideration of which the four counsel belonging to these courts had salaries granted them for their lives, by stat. 23 Geo. II. c. 27.

MARSHAM (Sir John), a learned English writer in the seventeenth century. He studied the law in the middle temple, and was sworn one of the six clerks in the court of chancery in 1638. In the beginning of the civil wars he followed the king to Oxford; for which he was deprived of his place by the parliament at Westminster, and plundered. After the death of the king he returned to London; compounded, among other royalists, for his real estate; and betook himself wholly to his studies and a retired life, the fruits of which were some excellent works. He wrote *Diatriba Chronologica*; *Chronicus Canon*, *Ægypticus*, *Ebraicus*, *Græcus*, &c. He died in 1685.

MARSII-MARIGOLD, *n.s.* Lat. *populago*. A flower consisting of several leaves, placed circularly, and expanding in form of a rose, in the middle of which rises the pointal, which becomes a membranous fruit.

And set soft hyacinths with iron-blue,
To shade *marsh-marigolds* of shining hue. *Dryden*.

MARSH MARIGOLD. See *CALTHA*.

MARSH ROCKET. See *SISYMBRIUM*.

MARSI, an ancient nation of Germany, who afterwards settled in Italy, where they occupied the territory in the environs of the Fucine Lake. They at first proved inimical to the Romans, but in process of time they became its firmest supporters. They were allowed by the Romans to be the most intrepid soldiers of their legions when in friendship, and the most formidable of their enemies when at variance; and it was a common saying, that Rome could neither triumph over the Marsi nor without them. They are particularly celebrated for their courage and intrepidity during the civil war, which from them was named the Marsian war. The contributions made to support the interests of Rome, and the number of men which they continually supplied to the republic, rendered them bold and aspiring; and they claimed, with the rest of the Italian states, a share of the honors and privileges of Roman citizens. This petition, though supported by the interest, the eloquence, and the integrity of the tribune Drusus, was received with contempt by the Roman senate; upon which, in A. U. C. 662, the Marsi put themselves at the head of the social war, one of the most obstinate and dangerous oppositions ever made to the progress of the Roman power. They obtained several victories, but were at last defeated; though the war was not terminated but by a grant of those privileges which the senate had refused.

MARSIGLI (Lewis Ferdinand, count), an Italian, descended from an ancient and noble family, was born at Bologna in 1658. He acquired great knowledge in the art of war and fortification; served under Leopold II. against the Turks, by whom he was taken prisoner in 1683, but redeemed in 1684. In the Spanish succession war, Marsigli, being in the fortress of Brisac, surrendered it to the duke of Burgundy in 1703, though it was thought able to hold out much longer; he was therefore stripped of all his commissions, and had his sword broken over him; and the commander Arco was beheaded. Marsigli now sought consolation in the sciences, and founded the institute of Bologna. He had formed a rich collection of instruments, astrono-

mical and chemical, plans of fortifications, models of machines, &c., all which he presented to the senate of Bologna in 1712, forming at the same time out of them the institute of the arts and sciences. His object was principally to promote the improvement of various branches of science, viz. astronomy, chemistry, natural history, physics, and military architecture. He spared no pains nor expense in obtaining instruments adapted to the illustration and advancement of science, and having obtained the pope's consent to a new foundation, and having fixed its laws and regulations, he solemnly confirmed the gift in 1712. The senate of Bologna purchased the principal palace in the city for its accommodation, and an observatory was erected in it, and professors were appointed. The gratitude of his fellow-citizens, for this and other liberal acts performed for them, was expressed in a decree for placing his statue in some conspicuous situation, but he steadily refused the honor. He also founded a printing-house, and furnished it with the best types for Latin, Greek, Hebrew, and Arabic, which he presented in 1728 to the Dominicans at Bologna, on condition of their printing all the writings of the institute at prime cost; this was called the printing house of St. Thomas Aquinas. After this he visited Holland and England, and in the course of his journey formed an acquaintance with Newton and Halley, Boerhaave and Muschenbroeck; he became a member of the Royal Society of London, and returned laden with books and specimens of natural history for the institute. At Amsterdam, the booksellers agreed to print the work which he had been preparing several years, and which was published under the title of *Historie Physique de la Mer*, in the year 1725. In the following year he printed another great work, which was regarded as the most valuable of all his publications, entitled *Danubius Pannonico-Mysicus*, in 6 vols. fol. This is a description of the Danube in its Hungarian and Turkish course. His other writings on philosophical subjects are numerous and valuable, in Latin, Italian, and French. He died in 1730.

MARSOLLIER (James), a French historian, born in Paris, 1647. He wrote a *Life of Cardinal Ximenes*, 2 vols. 2. *History of Henry VII. king of England*, 2 vols. 3. *History of the Inquisition*; all in 12mo. 4. *A Life of St. Francis*. He died archdeacon of Uzeu, 1724.

MARSYAS, in fabulous history, a celebrated musician of Celæne, in Phrygia, son of Olympus, or of Hyagnis, or Cagnus. He was so skilful in playing on the flute, that he is generally deemed the inventor of it. According to some, he found it when Minerva had thrown it aside, on account of the distortion of her face when she played upon it. Marsyas was enamoured of Cybele, and travelled with her as far as Nysa, where he challenged Apollo to a trial of his skill as a musician. The god accepted the challenge, and it was mutually agreed that he who was defeated should be flayed alive by the conqueror. The Muses, or (according to Diodorus), the inhabitants of Nysa, were appointed umpires. Each exerted his utmost skill, and the victory with much difficulty was adjudged

to Apollo. The god upon this tied his antagonist to a tree, and freed him alive. See APOLLO. The death of Marsyas was universally lamented; the Fauns, Satyrs, and Dryads, wept at his fate; and from their abundant tears arose a river of Phrygia, well known by the name of Marsyas. Marsyas is often represented on monuments, tied with his hands behind his back to a tree, while Apollo stands before him with his lyre. In independent cities, among the ancients, the statue of Marsyas was generally erected in the forum, to represent the intimacy which subsisted between Bacchus and Marsyas as the emblems of liberty. At Celœnæ the skin of Marsyas was shown to travellers.

MART, *n. s. & v. a.* Belg. and Teut. *marck*t, or contracted from MARKET, which see. A place or time of public sale and traffic: bargain; purchase: to purchase or sell.

Christ could not suffer that the temple should serve for a place of *mart*, nor the apostle of Christ that the church should be made an inn. *Hooker.*

If any born at Ephesus

Be seen at Syracusan *marts* and fairs,
He dies. *Shakspeare.*

I play a merchant's part,
And venture madly on a desperate *mart*. *Id.*
Cassius, you yourself

Do sell and *mart* your offices for gold
To underservers. *Id. Julius Cæsar.*

Ezekiel, in the description of Tyre, and the exceeding trade that it had with all the East as the only *mart* town, reciteth both the people with whom they commerce, and also what commodities every country yielded. *Ruleigh.*

Many come to a great *mart* of the best horses.
Temple.

The French, since the accession of the Spanish monarchy, supply with cloth the best *mart* we had in Europe. *Addison.*

Shall pompous banquets swell with such a prize?
And the bowl journey round his ample size;
Or the debating merchants share the prey
And various limbs to various *marts* convey. *Young.*

A MART is a great fair held every year for buying and selling goods. Public marts, with the tolls thereunto belonging, can only be set up by virtue of the king's grant, or by long and immemorial usage and prescription, which presupposes such a grant.

MART, LETTERS OF, written for LETTERS OF MARQUE, which see.

No man needs letters of *mart* against one that is an open pirate of other men's credit. *Marvell.*

MARTEAU, the name given by French naturalists, to a peculiar species of oysters, called also malleum by others. It is one of the most curious shells in the world. Its figure is that of a hammer, with a very long head, or rather of a pickaxe. It has a body of moderate thickness, and two long arms. It is of a brownish color, with a beautiful tinge of a violet-blue. Notwithstanding the strange shape of these shells, they close very exactly.

MARTHA, SANTA, a province of Colombia, South America, bounded on the west by Cartagena, from which it is separated by the great river Magdalena; on the north by the Spanish Main or Caribbean Sea; on the east by Maracibo and the Rio de la Hacha; on the south

by Santa Fe. It is about 300 miles in length, and 200 in breadth, and full of lofty and impracticable mountains, which form part of the ridge of the Caraccas. Many of these rise to the enormous elevation of 16,000 feet above the level of the sea. It is for the most part of a moist and hot temperature, but the winds from the cold and elevated regions serve, in some degree, to moderate the heat of the plains. It produces tobacco, cotton, palm wine, cacao, Brasil wood, sugar, vanilla, and maize, and a tree whose leaves afford a substance used here as soap. The mines here are of little importance. The pearl fishery was formerly carried on at Carrizal, about forty miles east of St. Martha, and was very productive. It is still followed on different parts of the coast. The valleys feed immense herds of cattle, and some mules are reared. The province is watered by the Magdalena, Santa Martha, and Pompatao.

MARTHA, SANTA, the capital of the above province, is situated near the Guaira, which supplies it with excellent water. It has a large and convenient harbour, protected by lofty ridges, a fertile neighbourhood, and has in front a round hill defending it on the side of the mountains. This city, founded in 1554, was made the magazine of Ximenes de Quesada, from whence he explored and conquered Granada. Sir Francis Drake reduced it to ashes in 1596. The harbour has two forts; but the town has declined of late years. It is 100 miles north-east of Carthagera.

MARTHA'S VINEYARD, an island of the United States, near the coast of New England, belonging to Duke's county, Massachusetts. It is nineteen miles long, and from two to ten broad. The greatest part is low, level, and comparatively barren; but Indian corn is raised for exportation, and rye in sufficient quantities for the consumption. The trees on the island are small; the principal manufactures are those of wool and salt. The island contains three towns, Edgartown, Fishbury, and Chilmark. Eight miles south of Falmouth, and twelve W. S. W. of Nantucket.

MARTIAL, *adj.* ? Fr. *martial*; Lat. *mar-*
MAR'TIALIST, *n. s.* *Mialis*. Warlike; given to war; brave: a warrior or fighter.

Into my feeble breast
Come gently, but not with that mighty rage
Wherewith the *martial* troops thou dost infest
And hearts of great heroes dost enrage.

Fairie Queene.

Let his neck answer for it, if there is any *martial* law in the world. *Shakspeare. Henry V.*

They proceeded in a kind of *martial* justice with enemies, offering them their law before they drew their sword. *Bacon.*

The queen of *martials*,
And Mars himself conducted them.

Chapman.

Many brave adventurous spirits fell for love of her; amongst others the high-hearted *martialist*, who first lost his hands, then one of his chiefest limbs, and lastly his life. *Howel.*

See
His thousands, in what *martial* equipage
They issue forth! Steel bows and shafts their arms
Of equal dread in flight or in pursuit. *Milton.*
The natures of the fixed stars are astrologically

differented by the planets, and esteemed *martial* or jovial according to the colours whereby they answer these planets. *Bacon.*

His subjects called aloud for war ;
But peaceful kings o'er *martial* people set,
Each other's poize and counterbalance are.

Dryden.

When our country's cause provokes to arms,
How *martial* musick every bosom warms.

Pope.

The army of the sciences hath been of late, with a word of *martial* discipline, drawn into its close order, so that a view or a muster may be taken of it with abundance of expedition.

Swift.

There, where a scepter'd Pictish shade
Stalked round his ashes lowly laid,
I marked a *martial* race, pourtrayed

In colours strong ;

Bold, soldier-featured, undismayed

They strode along.

Byron.

MARTIAL, in the old chemichal nomenclature, was often used to express preparations of iron. See **CHEMISTRY**.

MARTIAL LAW is the law of war that depends upon the just but arbitrary will and pleasure of the king, or his lieutenant ; for, though the king doth not make any laws but by common consent in parliament, yet, in time of war, by reason of the necessity of it to guard against dangers that often arise, he useth absolute power, so that his word is a law. But the martial law (according to chief justice Hale) is in reality not a law, but something indulged rather than allowed as a law ; and it relates only to members of the army, being never intended to be executed on others, who ought to be ordered and governed by the laws to which they are subject, though it be a time of war. And the exercise of martial law, whereby any person might lose his life, or member, or liberty, may not be permitted in time of peace, when the king's courts are open for all persons to receive justice.

MARTIALIS (Marcus Valerius), a celebrated Latin poet, born at Bilbilis, in Arragon, was one of the equestrian order. He went to Rome at the age of twenty-one, and staid there thirty-five years, under Galba and the succeeding emperors, till the reign of Trajan ; and, having acquired the esteem of Titus and Domitian, he was created tribune. But, finding that he was neglected by Trajan, he returned to Bilbilis, where he married a wife, and lived with her several years. He commends her, as being alone sufficient to supply the want of every thing he enjoyed at Rome. ' Romam tu mihi sola facis,' says he, Lib. xii. Epig. 21. She appears likewise to have been a lady of a very large fortune ; for, in Lib. xii. Epig. 31, he extols the magnificence of the house and gardens he had received from her. There are still extant fourteen books of his epigrams, many of which are excellent ; many are of the middling kind ; but, as he said of his own works,

Sunt bona, sunt quædam mediocritia, sunt mala plura.
There is also ascribed to him a work on the spectacles of the amphitheatre ; but the most learned critics think it was not written by Martial. The best editions of Martial are those in Usum Delphini, 4to., Paris, 1617, and cum Notis Variorum, 1619.

MARTIN, *n. s.* } *Fr. martinet.* A kind of
MARTINET, *n. s.* } swallow.
MART'LET.

This guest of Summer,
The temple-haunting *martlet*, does approve,
By his loved mansionary, that heaven's breath
Smells wooingly here. No jutting frieze,
Buttrice, nor coigne of vantage, but this bird
Hath made his pendant bed, and procreant cradle.
Where they most breed and haunt, I have observed
The air is delicate.

Shakspeare. Macbeth.

A churchwarden, to express St. Martin's in the Fields, caused to be engraved on the communion cup a *martin*, a bird like a swallow, sitting upon a mole-hill between two trees ;

Peacham.

As in a drought the thirsty creatures cry,
And gape upon the gathered clouds for rain ;

Then first the *martlet* meets it in the sky,
And with wet wings joys all the feathered train.

Dryden.

MARTIN, in ornithology. See **HIRUNDO**.

MARTIN, in zoology. See **MUSTELA**.

MARTIN (Benjamin), one of the most eminent artists and mathematicians of his age, was born in 1704. After publishing a variety of ingenious treatises, and particularly a periodical work entitled Martin's General Magazine of Arts and Sciences, and carrying on for many years a very extensive trade as an optician and globe-maker in Fleet Street, the infirmities of age compelled him to withdraw from the active part of business. Trusting to the integrity of others, he, though previously possessed of a capital more than sufficient to pay all his debts, became a bankrupt. In a fit of despair he attempted to destroy himself, and the wound, though not immediately mortal, hastened his death, which happened February 19th, 1782, in his seventy-eighth year. He had a valuable collection of fossils and curiosities, which, after his death, were sold by auction much below their value. His principal publications are, *The Philosophical Grammar*, 1735, 8vo. ; *A new, complete, and universal System of Decimal Arithmetic*, 1735, 8vo. ; *The Young Student's Memorial Book, or Patent Library*, 1735, 8vo. ; *Description and Use of both the Globes, the Armillary Sphere and Orrery, Trigonometry, &c.*, 1735, 2 vols. 8vo. ; *Memoirs of the Academy of Paris*, 1740, 5 vols. ; *System of the Newtonian Philosophy*, 1759, 3 vols. ; *New Elements of Optics*, 1759 ; *Mathematical Institutions, viz. Arithmetic, Algebra, Geometry, and Fluxions*, 1759 ; *Natural History of England*, with a map of each County, 1759, 2 vols. ; *Philology, and Philosophical Geography*, 1759 ; *Mathematical Institutions*, 1764, 2 vols. ; *Lives of Philosophers, with their Inventions, &c.*, 1764 ; *Introduction to the Newtonian Philosophy*, 1765 ; *Institutions of Astronomical Calculations*, 2 parts, 1765 ; *Description and Use of the Air-pump*, 1766 ; *Description of the Torricellian Barometer*, 1766 ; *Appendix to the Description and Use of the Globe*, 1766 ; *Philosophia Britannica*, 1778, 3 vols. ; *Gentleman and Lady's Philosophy*, 3 vols. ; *Miscellaneous Correspondence*, 4 vols. ; *System of Philology* ; *Philosophical Geography* ; *Magazine complete*, 14 vols. ; *Principles of Pump-work* ; *Theory of the Hydrometer* ; *Doctrine of Logarithms*.

MARTIN (St.), was born at Sabaria in Pannonia, in the beginning of the fourth century. His father was a military tribune; and he himself was obliged to carry arms. Soon after, being baptised, he renounced the military profession for the monastic. After passing many years in solitude, he returned to Pannonia, converted his mother, and with great zeal opposed the Arians, who governed the church in Illyria, for which he was publicly whipt. He afterwards retired to the neighbourhood of Poitiers, where he remained, till he was elected bishop of Tours in the year 374. He built the celebrated monastery of Marmoutier, near Tours, between the Loire and a steep rock. He afterwards became the apostle of all Gaul; diffused the doctrines of Christianity among the heathens, and destroyed their temples. The emperor Valentinian, and the tyrant Maximus, treated him with distinguished honor. He used his influence with the latter to preserve the Priscillianists, who were prosecuted by Ithace and Idace, bishops of Spain. He died at Candes, Nov. 8th, 397; or, as others say, on the 11th November, 400. He is the first of the saints confessors whom the Latin church idolised by offering public prayers to him. His life is written in elegant Latin by Fortunatus, and Sulpitius Severus, one of his disciples.

MARTIN (St.), an island of the West Indies, in long. $63^{\circ} 8' W.$ and lat. $18^{\circ} 4' N.$, is five leagues long, east and west, and three broad. Though the soil is stony, light, and badly watered it is tolerably fertile, producing the best tobacco of the Caribbees: in its woods is the candle tree, whose splinters lighted give a fragrant smell, with several trees affording gums. The north side was occupied by the French, and the south by the Dutch; the former, about forty years since, were 400 white families and 10,000 slaves; the Dutch only sixty families and 200 slaves. The chief place of the latter is on the north-west side, and is named the Harbour; it is defended by a small fort. On the south-east side are three salt ponds, affording a considerable quantity of this object for commerce. The small islands attached to St. Martin are, Middleburg Key, close to the north point, and the four Mangrove Keys on the east.

MARTINIQUE, or **MARTINICO**, one of the largest of the Caribbee Islands, is thirty-six miles long and seventeen broad. The south coast presents high and steep mountains, without wood. Irregular ramifications of these mountains cross the general chain, and, projecting into the sea, form bays, called by the French *Cul de Sac*. It is about fifty miles from north-west to south-east, about sixteen broad, and 140 in circumference. Three mountains rise above the smaller eminences: the highest bearing indelible marks of a volcano. The woods with which it is covered continually attract the clouds, and occasion noxious damps, which contribute to make it inaccessible, while the two others are in most parts cultivated. From these issue the many springs that water the island, and which are changed into torrents on the slightest storm. The principal productions are sugar, coffee, cassia, cotton, indigo, cocoa, ginger, &c. It is

well adapted to trade, from the number of its bays and harbours, which possess the advantage of affording a certain shelter from the hurricanes of these latitudes. With all these advantages, however, Martinico, though in greater forwardness than the other French colonies, had made but little progress at the end of the seventeenth century. In 1700 it contained only 6597 whites. The savages, mulattoes, and free negroes, men, women, and children, amounted to 507. The number of slaves to 14,566. In 1732 the black population amounted to 72,000, and the value of the exports to £700,000 per annum. This trade annually brought into the ports of the island 200 ships from France, fourteen or fifteen fitted out by the mother country for the coast of Guinea, sixty from Canada, ten or twelve from the islands of Margaritta and Trinidad; besides the English and Dutch ships that came to carry on a smuggling trade. The navigation from the island to the northern colonies, the Spanish continent, and to the Windward Islands, employed 130 vessels from twenty to seventy tons burden, manned with 600 European sailors of all nations, and 1500 slaves long inured to the sea service. The war of 1744 terminated this prosperity; and Martinico fell into the hands of the English: the island was soon after infested with vast swarms of ants, which destroyed every vegetable. It was restored in July 1763, sixteen months after it had been conquered, but deprived of all its means of prosperity. In 1769, 1788, and 1810, the exports and imports were:—

	Imports.	Exports.
1769,	£583,412	£536,631
1788,	1,195,111	1,201,875
1810,	635,664	791,773

In 1794 Martinico was taken by the British under Sir John Jervis and Sir Charles Grey, and restored to the French at the treaty of Amiens in 1802. It was again taken by the British on the 24th of February 1809, and once more reverted to its former masters at the general peace in 1815. The population according to a return made to the house of commons in 1810, when it was in possession of the British, was:—

Slaves	78,577
Free persons of color	8,630
Number of white inhabitants	9,206
	<hr/> 96,413

Fort Royal, the chief place, is on the middle of the west side, on a narrow neck of land projecting out from the bottom of a deep bay. This neck, which bends round in the form of a man's arm, together with another called Monk's Island, forms a safe harbour, the entrance of which is protected by forts on each point, whose fires cross. The harbour is also commanded by Fort Bourbon, on a hill, behind the town. The situation is unhealthy, being surrounded by marshes.

St. Pierre, seven leagues north-west of Port Royal, is the second place of the island: its road is open, and consequently unsafe in the hurricane months; and besides ships are obliged

to anchor a considerable distance from the town. The latter is built on a narrow strip of low land, which forms the beach; the hills rising so closely behind it, as nearly to overhang the houses. It contains three streets parallel to the beach, and some transverse ones; but these latter are so steep as not to admit carriages. The hills are furrowed by deep ravines, through which descend little torrents, the waters of which are conducted through the streets, and both keep them clean and refresh the atmosphere, which would otherwise be intensely hot, from the sea breeze being interrupted by the hills. The houses are plain, built of stone, and with one or two stories. Trinity Bay, on the west side of the island, has safe anchorage in the hurricane months. It has a flourishing town.

Robert's Bay, on the east, is a good port, formed by two islands. Off the north-west point is a large rock, called the Pearl; and off the south-west three-quarters of a mile, another called the Diamond (Devil Island, or Isle de Barque of the French), which has the shape of a sugar loaf, with the top broken off, and has only a boat's passage between it and the main. This rock is 600 feet high, and one mile in circumference. The south, south-west, and east sides are inaccessible, rising perpendicularly from the sea; and the west side, where is the only landing, is lined by breakers. It was taken possession of by the English in 1804, while blockading Martinique; and, with immense labor, three batteries mounting twenty-four pounders were constructed on it, to command the whole bay.

MARTINMAS, *n. s.* Martin and mass. The feast of St. Martin; the eleventh of November; often corrupted to martilmass or martlemas.

Martinmas beef doth bear good tacker,
When country folke do dainties lacke.

Tusser.

MARTLETS, in heraldry, little birds represented without feet; and used as a difference or mark of distinction for younger brothers, to put them in mind, says Guillim, that they are to trust to the wings of virtue and merit, in order to raise themselves, and not to their feet, they having little land to set their foot on. See **HERALDRY**.

MARTYN (Henry), an able and interesting missionary, born at Truro in Cornwall, in 1781, was educated at the grammar-school of Truro, and removed, in 1797, to St. John's College, Cambridge. He was chosen fellow in 1802. The following year he took orders; and in 1805 went, as a chaplain to the East India Company, to India. Here he distinguished himself by his rapid acquirement of the Sanscrit; translated the Common Prayer into Hindostanee; and performed divine service publicly in that language. From India he proceeded to Shiraz in Persia; had conferences with the most learned Mahommedan doctors; and translated the Psalms and New Testament into the Persian tongue. His health failing, he died of a decline, on his road to England, October 16th, 1812.

MARTYNIA, in botany, a genus of the angiospermia order, and didynamia class of plants; natural order tenth, personate: *cal.* quinquefid

cor. ringent: *caps.* ligneous, covered with a bark, with a hooked beak, trilocular, and bivalved. There are four species; both tender, herbaceous, flowery plants of South America; one an annual, the other a perennial, rising with erect stalks, from a foot to two feet high, garnished with oblong simple leaves, and terminated by short spikes of large monopetalous, bell-shaped flowers, of blue and purple colors. They flower in July and August, and are very ornamental, but require always to be kept in the hottest parts of the stove.

MARTYR, *n. s.* } *Fr.* *martyr*; *Gr.* *μαρτυρ*,
MARTYRDOM, *v. a.* } a witness. One who by
MARTYROLOGY, } his death bears witness to
MARTYROLOGIST. } the truth, (see the extract from South :) hence a sufferer in any cause; to put to death for virtue or religion: martyrdom, the act of dying as, or testimony of, a martyr: martyrology and martyrologist are, respectively, a history or historian of martyrdoms.

If an infidel should pursue to death an heretick professing Christianity only for Christian profession sake, could we deny unto him the honour of martyrdom?
Hooker.

You could not beg for grace.

Hark, wretches, how I mean to martyr you;

This one hand yet is left to cut your throats.

Shakspeare.

Now that he hath left no higher degree of earthly honour, he intends to crown their innocence with the glory of martyrdom.

Bacon.

If to every common funeral,

By your eyes martyred, such grace were allowed,
Your face would wear not patches, but a cloud.

Suckling.

Prayers and tears may serve a good man's turn; if not to conquer as a soldier, yet to suffer as a martyr.

King Charles.

Herod, whose unblest

Hand, O! what dares not jealous greatness? tore
A thousand sweet babes from their mother's breast,
The blooms of martyrdom.

Crashaw.

Wars, hitherto the only argument

Heroick deemed, chief mastery to dissect,
With long and tedious havock, fabled knights
In battles feigned; the better fortitude
Of patience and heroick martyrdom

Unsung.

Milton.

Thus could not the mouths of worthy martyrs be silenced.

Browne.

In the Roman martyrlogy we find at one time many thousand martyrs destroyed by Dioclesian, being met together in a church, rather than escape by offering a little incense at their coming out.

Stillingfleet

Nearer heaven his virtues shone more bright,
Like rising flames expanding in their height,
The martyr's glory crowned the soldier's fight.

Dryden.

What mists of providence are these?

So saints, by supernatural power set free,
Are left at last in martyrdom to die.

Id.

To be a martyr signifies only to witness the truth of Christ: but the witnessing of the truth was then so generally attended with persecution, that martyrdom now signifies not only to witness, but to witness by death.

South's Sermons.

The first martyr for Christianity was encouraged, in his last moments, by a vision of that divine person for whom he suffered.

Addison.

Martyred with the gout.

Pope.

Socrates,

Truth's early champion, martyr for his God.

Thompson.

MARTYR properly signifies a witness, and is applied, by way of eminence, to those who suffer in witness of the truth of the gospel. The Christian church has abounded in martyrs, and history is filled with accounts of their singular constancy and fortitude under the cruellest torments human nature was capable of suffering. The primitive Christians were accused by their enemies of paying a sort of divine worship to the martyrs. Thus when the Jews, at the martyrdom of Polycarp, desired the heathen judge not to suffer the Christians to carry off his body, lest they should leave their crucified master and worship him in his stead, the Christians of the Smyrna church answered, 'we can neither forsake Christ nor worship any other; for we worship him as the Son of God, but love the martyrs as the disciples and followers of the Lord, for the great affection they have shown to their King and Master.' A similar answer was given at the martyrdom of Fructuosus, in Spain, by Eulogius his deacon. Many of the Christians of this period believed that the martyrs enjoyed very singular privileges; that upon their death they were immediately admitted to a state of bliss, while other souls waited for the completion of their happiness till the day of judgment, &c. The churches built over the graves of the martyrs, and called by their names, to preserve the memory of their sufferings, were distinguished by the title *martyrium confessio*, or *memoria*. The festivals of the martyrs are of very ancient date in the Christian church, and took their rise about the time of Polycarp, who suffered martyrdom about the year 168. On these days the Christians met at the graves of the martyrs, and offered thanksgivings to God for the examples they had afforded them: they celebrated the eucharist, and gave alms to the poor; which, together with a panegyric oration or sermon, and reading the acts of the martyrs, were the spiritual exercises of those anniversaries. Of the sayings, sufferings, and deaths of the martyrs we have but very little left, the greatest part of them having been destroyed during the dreadful persecution carried on by Dioclesian for ten years against the Christians; when diligent search was made after their books and papers, and all that were found were burnt. Eusebius, indeed, composed a martyrology, but it has been lost; and those since compiled are received with just caution. From the eighth century, several Greek and Latin writers endeavoured to make up the loss by compiling, with vast labor, accounts of the lives and actions of the ancient martyrs, but which consist of little else than a series of fables.

MARTYR (Peter), a celebrated divine, born in Florence in 1500. He studied philosophy and the languages at Padua and Bononia, was a regular Augustine in the monastery of Fiscoli, and was esteemed one of the best preachers in Italy. The works of Zuinglius and Bucer gave him a good opinion of the Protestants, and his conversation with Valdez confirmed it. He for some time preached that doctrine at Rome in private; but, being impeached, fled to Naples, and thence to Lucca, where he brought over to the protes-

tant interest Emanuel Tremellius, Celsus, Martinegas, Paul Lasicius, and Jeremiah Zanchy. He was sent for to England by king Edward VI., and made professor of divinity at Oxford in 1549. In queen Mary's reign he returned to Strasburgh, and was present at the conference of Poissy. He differed from Calvin concerning Christ's presence in the eucharist. He wrote a great number of works, and died in 1562.

MARVELL, *n. s. & v. n.* } Fr. *merveille, mer-*
MAR'VELLOUS, *adj.* } *veiller*; of Lat. *mira-*
MAR'VELLOUSLY, *adv.* } *bilis, miro*, to won-
MAR'VELOUSNESS, *n. s.* } der. A wonder;

astonishing event: to wonder; be astonished: marvellous is, strange; unusual; wonderful; incredible; the *adv.* and *n. s.* corresponding.

This is the Lord's doing; it is *marvellous* in our eyes. *Psalms.*

The countries marvelled at thee for thy songs, proverbs, and parables. *Eccles. xlvii. 17.*

A *marvel* it were, if a man could espy, in the whole scripture, nothing which might breed a probable opinion, that divine authority was the same way inclinable. *Hooker.*

I am scarce in breath, my lord.

—No *marvel*, you have so bestirred your valour, you cowardly rascal! *Shakspeare. King Lear.*

You make me *marvel*. *Shakspeare.*

The army marvelled at it. *Id.*

She has a *marvellous* white hand, I must confess. *Id.*

You look not well, seignior Antonio;

You have too much respect upon the world:

They lose it that do buy it with much care.

Believe me, you are *marvellously* changed. *Id.*

Mine eyes and ears can witness, with what approval and applause divers of the Catholics royal, as they are termed, entertained the new translated liturgy of our church; as *marrelling* to see such order and regular devotion in them, whom they were taught to condemn as heretical. *Bp. Hall.*

The encouragement of his two late successors, with which he was *marvellously* elated. *Clarendon.*

The *marrellous* fable includes whatever is supernatural, and especially the machines of the gods.

Pope's Preface to the Iliad.

MARVELL (Andrew), an ingenious writer in the seventeenth century, bred at Cambridge. He travelled through most of Europe, and was secretary to the embassy at Constantinople. His first appearance in public business at home was as assistant to Milton when Latin secretary to the protector. A little before the Restoration he was chosen by his native town, Kingston upon Hull, to sit in that parliament, which began at Westminster April 25th, 1660; and is recorded as the last member who received the wages anciently paid to representatives by their constituents. He seldom spoke in parliament, but he had great influence without doors upon the members of both houses; and made himself very obnoxious to the government by his actions and writings: notwithstanding which, king Charles II. took great delight in his conversation, and tried all means to win him over to his side, although Marvell was far from being in affluent circumstances. He died, not without strong suspicions of being poisoned, in 1678, aged fifty-eight. In 1688 the town of Kingston upon Hull contributed a sum of money to erect a monument over him in the church of St. Giles in the Fields, where

he was interred, and an epitaph composed by an able hand; but the ministry of that church forbade both the inscription and monument to be placed there. He wrote *The Rehearsal Transposed*; *A short Historical Essay concerning General Councils, Creeds, and Impositions in Matters of Religion, &c.*; also *Poems and Letters*.

MARVELLA, or **MARBELLA**, a sea-port town of Spain, on the road from Gibraltar to Malaga. Its harbour is fortified but small, and the town is surrounded with walls, having a neat square, and a fountain in the centre. The town house and church are good buildings. In the environs sugar, wine, cotton, and coffee, are raised. Population 8000. Eighty-four miles W. S. W. of Granada, and thirty-four N. N. E. of Gibraltar.

MARULLUS (Michael), Tarchanistis, a learned Greek who went to Italy, after the taking of Constantinople. He wrote poems in Greek and Latin. He was a soldier as well as a poet, but an atheist, and a great admirer of Lucretius. He was drowned in the Cæcina in Tuscany.

MARWAR, a large district of Hindostan, in the province of Ajmeer, situated between 26° and 28° of N. lat. It belongs to the rajpoot rajah of Joudpore, whose family have possessed it from time immemorial. It is a strong, but not a fertile province. See *Joudpore*.

MARY I., queen of England, was eldest daughter of Henry VIII. by his first wife Catharine of Spain, and born at Greenwich, in February 1517. Her mother was very careful of her education, and provided her with proper tutors. Her first preceptor was the famous Linacre, who drew up for her use the Rudiments of Grammar, and afterwards *De emendatâ structurâ Latini sermonis libri sex*. On Linacre's death, in her sixth year, Lewis Vives, a learned man of Valenza in Spain, became her next tutor; and composed for her *De ratione studii puerilis*. Under the direction of these learned men she became mistress of the Latin language; and Erasmus commends her for her epistles in that language. King Edward VI., her brother, dying on the 6th of July 1553, she was proclaimed queen the same month, and crowned in October. Upon her accession she declared, in her speech to the council, that she would not persecute her Protestant subjects; but in the following month she prohibited preaching without a special license; and, before the expiration of three months, the Protestant bishops were excluded the house of lords, and all the statutes of Edward VI., respecting the Protestant religion, were repealed. In July 1554 she was married to prince Philip of Spain; and began that persecution against the Protestants for which her memory is so deservedly infamous. See *ENGLAND*. Some have supposed, that the queen was herself passionate and humane; and that most of those barbarities were committed by her bishops without her knowledge. But among numberless instances that might be adduced in proof of the contrary, we need only mention her ungrateful treatment of archbishop Cranmer, who in reality saved her life. Burnet says, 'that her firm adherence to her mother's cause and interest, and her backwardness in sub-

mitting to the king her father, were thought crimes of such a nature by his majesty, that he came to a resolution to put her openly to death; and that when all others were unwilling to run any risk in saving her, Cranmer alone ventured upon it,' and urged such arguments as prevailed on the old tyrant to preserve her. In return for this favor the ungrateful bigot condemned and burned the worthy prelate for heresy. In 1556 the persecution became general; and Protestants of all ranks and ages, and of both sexes, fell victims to papal fury. See *ENGLAND*. She died November 7th, 1558, aged forty-three, of an epidemic fever, having long previously been a prey, if not to remorse, at least to chagrin, arising from her having no children, the absence and unkindness of her husband, the loss of Calais, &c. *Strype* has preserved three pieces of hers, viz. 1. A prayer against the assaults of vice. 2. A meditation touching adversity. 3. A prayer to be read at the hour of death. In Fox's Acts and Monuments are printed eight of her letters to king Edward and the lords of the council, on her non-conformity, and on the imprisonment of her chaplain Dr. Mallet. In the *Sylloge epistolarum* are several more of her letters, extremely curious. In Hayne's State Papers are two in Spanish, to the emperor Charles V. There is also a French letter, printed by Strype from the Cottonian library, in answer to a haughty mandate from Philip, when he intended to marry the lady Elizabeth to the duke of Savoy, against the inclination both of the queen and princess; it is written in a most abject manner, and a wretched style. She likewise translated a considerable part of Erasmus's paraphrase on St. John's gospel, which was completed by Dr. Mallet, and is preserved in the first volume of Erasmus's paraphrase on the New Testament: printed at London, 1548, in folio.

MARY I. queen of Scotland, daughter of king James V., was born in the royal palace of Linlithgow, December 8th, 1542. Her mother was Mary, the eldest daughter of Claude duke of Guise, and widow of Lewis duke of Longueville. Her father dying, a few days after her birth, she scarcely existed before she was hailed queen, and a regency was appointed, though not in the most able hands. At six years of age Mary was conveyed to France, where she received her education in the court of Henry II.; and became one of the most beautiful and accomplished ladies of her age. She not only spoke the French, Italian, and Spanish tongues, with ease and propriety, but made herself mistress of the dead languages, and devoted much of her time to the study of history. Whilst she resided in the court of Henry II. her personal charms made a deep impression on the Dauphin. The constable Montmorency in vain opposed their marriage. The importance of her kingdom to France, and the power of her uncles the princes of Lorraine, counteracted his intrigues; and the Dauphin obtained the most beautiful princess in Christendom. His father, Henry II., dying soon after, they mounted the throne of France. In that elevated station the queen did not fail to distinguish herself, and there she learned the first lessons of royalty. But this scene of gran-

deur and felicity was of short duration. Her husband, Francis II., died unexpectedly, after a reign of only sixteen months. The disgrace of her uncles, the princes of Lorraine, which followed, and the coldness of the queen mother, induced her to accept the invitation of her Scottish subjects, to take possession of the crown to which she had been born. In Scotland she at first gave satisfaction to almost every class of people. She tolerated Protestantism, requiring only a like indulgence for her own faith, and took the politic measure of ingratiating herself with her natural brother, the prior of St. Andrews, who had placed himself at the head of the reformers. By his aid she crushed an early and formidable rebellion; and in reward for his services conferred upon him a large estate, and created him earl of Murray. For a few years her reign was prosperous, and her administration applauded by all her subjects; but a queen, young, beautiful, and accomplished, an ancient hereditary kingdom, and the expectation of a greater inheritance, were objects to excite the love and ambition of the most illustrious personages. Mary, however, constantly rejected every offer of a foreign alliance; and, swayed at first by prudential motives, and afterwards by love, she, on the 29th of July, 1565, gave her hand to Henry Stuart, lord Darnley, the son of the earl of Lennox. This nobleman, whose elegance of person and manners were only equalled by the depravity of his mind, owed his good fortune not solely to the affection of the queen. Mary was indeed extravagantly attached to him; but one motive that considerably swayed her to accept him as a husband was, that after herself he was the nearest heir to the crown of England, as well as the next in succession to that of Scotland, after the earl of Arran. She conferred on him the title of king, shared her dignities with him, and paid him all the attention that could have been shown by the fondest wife. Yet he had not been married seven months, when he entered into a conspiracy to deprive her of the government, and even to endanger her life. With this view he headed a band of factious nobles, who entered her chamber at night; and, though she was then far advanced in pregnancy, murdered her secretary, Rizzio, in her presence, whilst one of the ruffians held a pistol to her breast. Such an outrage, together with his frequent amours, could not fail to alienate the queen's affections, and to open her eyes to the glaring defects of his character. Yet she still treated him with respect, and labored to fashion him to the humor of her people. This was labour in vain. His preposterous vanity and aspiring pride roused the resentment and the scorn of the nobles; while his folly and want of dignity made him despised by the people. He deserted the conspirators with whom he had been leagued in the assassination of the secretary; and had the extreme imprudence to threaten publicly the earl of Murray, who, from his talents and popularity, possessed the greatest power of any man in the kingdom. The consequence was, that a combination was formed for the king's destruction; and, on the 10th February 1567, the house in which he then resided

was early in the morning blown up with gunpowder, and his naked body, without any marks of violence, found in an adjoining field. Such a daring murder filled every mind with horror and astonishment. The queen, who had been in some measure reconciled to her husband, was overwhelmed with grief, and took every method in her power to discover the regicides; but for some days nothing appeared which could lead to the discovery. Papers, indeed, were posted on the most conspicuous places in Edinburgh, accusing the earl of Bothwell of the crime; and rumors were industriously circulated that his horrid enterprise was encouraged by the queen. Conscious, it is presumed, of her own innocence, Mary was the less disposed to believe the guilt of Bothwell, who was accused as having only acted as her instrument; but, when he was charged with the murder by the earl of Lennox, she instantly ordered him on his trial. Through the management of the earl of Morton, and other of his friends, Bothwell was acquitted of all share and knowledge of the king's murder; and, what is still more astonishing, procured, by the same influence, a paper signed by the majority of the nobles recommending him as a fit husband for the queen! Armed with this, which he weakly thought sufficient to defend him from danger, Bothwell soon afterwards seized the person of his sovereign, and carried her a prisoner to his castle at Dunbar. It has indeed been alleged by the queen's enemies, that no force was employed on the occasion; that she was seized with her own consent; and that she was even privy to the subscribing of the bond by the nobles. But it has been well observed by Mr. Tytler, that 'her previous knowledge of the bond, and her acquiescence in the seizure of her person, are two facts in apparent opposition to each other. Had the queen acted in concert with Bothwell, in obtaining the bond from the nobles, nothing remained but, under the sanction of their unanimous address, to have proceeded directly to the marriage. Instead of which, can we suppose her so weak as to reject that address, and rather choose that Bothwell should attempt to seize and carry her off by violence?—an attempt which many accidents might frustrate, and which at all events could not fail to render him or both of them odious to the whole nation. Common sense then, as well as candor, must induce us to believe, that the scheme of seizing the queen was solely the contrivance of Bothwell and his associates, and that it was really by force that she was carried to Dunbar.' Being there kept a close prisoner for twelve days, having as there is reason to believe actually suffered the indignity of a rape, perceiving no appearance of a rescue, and being shown the infamous bond of the nobles, Mary promised to receive her jailor for a husband, as, in her opinion, the only refuge for her injured honor. Every man who feels for the sufferings, and respects the memory of Mary, must regret that she had not fortitude to resist every attempt to force upon her as a husband the profligate and audacious villain, who had offered her such an insult. This, however, is only to regret that she was not more than human; that she, who possessed so many

perfections, should have had them blended with one defect. The marriage, thus inauspiciously contracted, was solemnised on the 15th of May, 1567; and it was the signal for revolt to Morton, Lethington, and many of the other nobles, by whose wicked policy it had been chiefly brought about, and who had bound themselves to employ their swords against all persons who should presume to disturb so desirable an event. As Bothwell was justly and universally detested, and as the rebels pretended that it was only against him and not against the queen that they had taken up arms, troops flocked to them from every quarter. The progress and issue of this rebellion will be seen in our history of Scotland: suffice it to say here, that upon the faith of promises the most solemn, not only of personal safety, but of receiving as much honor, service, and obedience, as ever was paid by the nobility to the princes, her predecessors, the queen delivered herself into the hands of the rebels, and persuaded her husband to fly from the danger which threatened his life. These promises were instantly violated. The faithless nobles, after insulting their sovereign, hurried her as a prisoner to Loch-leven castle, where she was committed to the care of the mother of her bastard brother; who, with the insolence of a prostitute, says Mr. Whitaker, asserted the legitimacy of her own child, and the illegitimacy of Mary; and who stript her of her royal ornaments, and dressed her in a coarse brown cassock. In this distress the queen's presence of mind did not forsake her. She made her escape, and soon found herself at the head of 6000 men. This army, however, was defeated; and, in opposition to the advice and intreaties of all her friends, she formed the imprudent resolution of taking refuge in England. The archbishop of St. Andrew's accompanied her to the border; and, when she was about to quit her own kingdom, he laid hold of her horse's bridle, and on his knees conjured her to return: but Mary proceeded, fully relying on Elizabeth's friendship, which had been offered her while a prisoner, and of the sincerity of which she harbored no doubt. That princess, however, who had never forgiven her assumption of the title and arms of the queen of England, while she was wife to the dauphin of France, now dreaded her talents, and envied her charms. She, therefore, under various pretences, and in direct violation of public faith and hospitality, kept her a close prisoner for nineteen years; encouraged her Scottish subjects to accuse her publicly of the murder of her husband, allowed her no opportunity of vindicating her honor, and even employed venal scribblers to blast her fame. Under this unparalleled load of complicated distress, Mary preserved the magnanimity of a queen, and practised with sincerity the duties of a Christian. Her sufferings, her dignified affability, and her gentleness of disposition, gained her great popularity in England, especially among the Roman Catholics; and as she made many attempts to procure her liberty, and carried on a constant correspondence with foreign powers, Elizabeth became at last so much afraid of her intrigues, that she determined to cut her off. With this view she prevailed upon

her servile parliament to pass an act which might make Mary answerable for the crimes of all who should call themselves her partizans; and, upon that flagitious statute, she was tried as a traitor concerned in the conspiracy of Babington. See SCOTLAND. Though the trial was conducted in a manner which would have been illegal, even if she had been a subject of England, and though no certain proof appeared of her connexion with the conspirators, she was, to the amazement of Europe, condemned to suffer death. The fair heroine received her sentence with great composure; saying to those by whom it was announced, 'The news you bring cannot but be most welcome, since they announce the termination of my miseries. Nor do I account that soul to be deserving of the felicities of immortality, which can shrink under the sufferings of the body, or scruple the stroke that sets it free.' On the evening before her execution, for which, on the succeeding morn, she prepared herself with religious solemnity and perfect resignation, she ordered all her servants to appear before her, and drank to them. She even condescended to beg their pardon for her omissions or neglects; and recommended it to them to love charity; to avoid the unhappy passions of hatred and malice, and to preserve themselves stedfast in the faith of Christ. She then distributed among them her money, her jewels, and her clothes, according to their rank and merits. She wrote her will with her own hand, constituting the duke of Guise her principal executor; and to the king and queen of France she recommended her son. In the castle of Fotheringay she was beheaded on the 8th of February, 1587, in the forty-fifth year of her age; and her body, after being embalmed and laid in a leaden coffin, was buried with royal pomp in the cathedral of Peterborough. Twenty years afterwards her bones were, by order of her son king James I., removed to Westminster, and deposited in their proper place among the kings of England. The character of Mary has furnished matter of controversy for 200 years. She is universally allowed to have had considerable talents, and a mind highly cultivated. By one party she is painted with more virtues, and with fewer defects, than almost any other woman of the age in which she lived. By another she is represented as guilty of the grossest crimes which a woman can commit—adultery, and the murder of her husband. By all it is confessed, that, previous to her connexion with the earl of Bothwell, her life as a Christian was exemplary, and her administration as a queen equitable and mild; and it has never been denied, that she bore her tedious sufferings with such resignation and fortitude as are seldom found united with conscious guilt. These are strong presumptions of her innocence. The moral characters of mankind change by degrees; and it seems hardly consistent with the known principles of human nature, that any person should at once plunge suddenly from the summit of virtue into the depths of vice; or, when sunk so low, should by one effort recover his original state of elevation. But in this controversy presumptions must go for nothing. The positive evidences brought against the queen of

Scots are so conclusive, that, if they be genuine, she must have been guilty; and, if they be spurious, there can be no doubt of her innocence. They consisted of a box with letters, contracts, and sonnets, said to be written by herself and sent to the earl of Bothwell. In addition to these, the supposed confessions of the criminals who had suffered for the king's murder were originally urged as proofs of her guilt; but these confessions are now admitted by all parties to be either wholly forged, or so grossly interpolated that no stress whatever can be laid upon them; and during Mary's life it was affirmed by her friends, and not sufficiently contradicted by her enemies, that the persons who had accused Bothwell, and were doubtless his accomplices, instead of criminating the queen, had openly protested her innocence in their dying moments. The letters made their first appearance in a secret council assembled by the earl of Murray on the 4th of December, 1567; and the reason there assigned by the confederates for their unwillingness to produce them was, 'That luif they beare unto hir person, and the reverence of his majestie, whais moder she is.' And they proceed to say, that they would not have produced them at all, 'gif otherwise the sinceritie of their intentions and proceedings from the beginninge myght be known to forrein nacions, and the inhabitants of this ile satisfiet and resolvit of the richtness of their quarrel, and the securitie of them and their posteritie be any other meane might be providit and established.' In this act of council the rebels discover the greatest anxiety for their pardon and security, as appears from their declaration:—'The lords of secrete council, &c., desire it to be found and declarit be the estates and haill body of the parliament, that the cause and occasion of the tacking of the queen's person, upon the 15th daie of Junii last by past, and holding and detaininge of the same within the hous and place of Lochleven continewallie sensyne, presentlie, and in all tymes comyng; and generally all other things inventit, spokin, writtin, or donne be them, or onny of them, sen the tent daie of February last by past unto the daie and date heirof, towiching the saied queen hir person: that caus, and all things depending theiron, or that onie wise mai apperteine theireto, &c., was in the saied queen's awin default, in as far as be divers hir privie letters written and subscrivit with hir awin hand, and sent by her to James Eril Bothwell, &c.—and be her ungodlie and dishonorable proceedings in a privat marriage, suddanie and unprovisably, it is most certain, that she was previe, art and part, and of the actual devise and deid of the for-mencionit murder of the kinge, her lawchfull husband, our sovereigne lorde's father, committit be the said James Eril Bothwell, &c.' Had the letters been really genuine, into the absurdity of this declaration no man of common sense could possibly have fallen. Truth is always consistent: but in a series of forgeries contradictions are scarcely avoidable. The confederates rose in rebellion against the queen on the 10th of June; they faced her in rebellion at Carberrie hill on the 15th; they sent her away to prison on the 16th; yet they afterwards justified all

that they had done since the 10th of February by letters, which, they said, they had not till the 20th of June! 'This,' says Mr. Whitaker, 'if we consider it as folly, is one of the most striking and eminent acts of folly that the world has ever beheld. But it ought to be considered in a light much more dishonorable to the rebels; and, as a piece of knavery, it is one of the rankest that has ever been attempted to be imposed upon the sons of men.' On the 4th of December they had not fixed any day for the discovery of the letters. The story of the seizure of Dalgliesh with the casket was not thought of till nearly a year afterwards; and when it was invented, they had certainly forgotten the date of their act of council. In that act, therefore, they were free to rove at large; but they roved very incautiously. By grounding upon the letters, proceedings prior to the 10th of June, they plainly declare the discovery of these fatal papers to have been antecedent to the 20th. By grounding upon them their secret messages for sedition, their private conventions for rebellion, and 'every thing inventit, spokin, written, or done be them, or onny of them, respecting the queen, Bothwell, or Darnley, sen the tent daie of February last by past,' they even intimate the discovery to have been previous to the murder of the king; and yet by their own accounts some of the letters were then actually unwritten. This is astonishing, and shows the extreme difficulty of carrying to any length a consistent series of falsehoods. Even Murray, Morton, and Lethington, could not do it. This act of council had been formed and managed with a view to the approaching convention of the estates. It was a preparation for the parliament in which the conspirators had secured the fullest sway, and where they proposed to effectuate their pardon and security, and to establish the letters as decisive vouchers against the queen. Accordingly, upon the 15th of December, 1567, the three estates were assembled. The conspirators invited no candid or regular investigation. The friends of the nation and of the queen were overawed. Every thing proceeded in conformity to the act of council. The conspirators, by a parliamentary decree, received a full approbation of all the severities which they had exercised against the queen. Under one form, therefore, the letters were certainly exhibited before the council, and under another form they were produced in parliament; but, had they been genuine, they would have appeared uniformly with the same face. The clerk of the council was Alexander Hay, a notary public accustomed to draw up writings and to attest them; and, what puts his accuracy with respect to the letters beyond all possibility of doubt, his description of them is authenticated in the fullest manner by the signatures of Murray, Morton, and others, who formed the secret council. The letters, therefore, were actually presented to the secret council with the customary appendage of subscription to them. But, when these artificers of fraud came to reflect more closely on the approach of parliament, and to prepare their letters for the inspection of the friends of Mary, they began to shrink at the thoughts of what they had done. To substantiate

the charge by letters under her own hand, they had naturally annexed her own subscription, a letter unsubscribed being a solecism in evidence. But, most unfortunately for the cause of complete forgery, Mary was still in possession of her own seal; and he who fabricated the letters was not an engraver. For this reason, 'the allegit writings in form of missive letters or epistles,' says the bishop of Ross, in an address to Elizabeth, 'are not sellit nor signetit.' They were neither attested by her subscription at the bottom, nor secured by her seal on the outside. In the secret council, where all were equally embarked in rebellion, these omissions were of no importance. But that letters, containing intimations of adultery and of murder, should be sent by the queen to the earl of Bothwell, with her subscription to them, and yet without any guard of a seal upon them, so far exceeds all the bounds of credibility, that they could not expect it to gain the belief of parliament. They were struck with the absurdity of their plan, and dreaded a detection. They were under the necessity of altering it; but they could not supply the defect of the seal. They, therefore, wrote over the letters anew, and withheld the subscription. These letters were now as complete as the conspirators wished them; yet in this state, while they were unsubscribed and unsealed, they wanted other formalities which are usual in despatches. They were without directions, and they had no dates. They must, therefore, have been sent by the queen to Bothwell as open and loose papers; yet they contained evidence against herself, and against him, of the most horrid wickedness; and Nicholas Hubert, the person who is said to have carried most of them, was of the lowest condition, and, as Dr. Robertson characterises him, 'a foolish talkative fellow.' He would, therefore, surely read those papers, which are polluted from end to end with open and uncovered adultery, and as surely report their contents to others. These are most incredible circumstances, on the supposition that the letters are authentic, unless the queen was, what none of her enemies ever represented her, an absolute idiot. The letters, in their composition, bear no resemblance to the other writings of the queen. They have a vulgarity, an indelicacy, and a coarseness of expression and manner, that by no means apply to her. They breathe nothing of the passion of love besides the impulses of the sensual appetite; and represent a queen highly accomplished acting with all the sneaking humility of a cottager to a peer. 'Such,' says Mr. Whitaker, after quoting several expressions, 'with which we will not pollute our work, 'was the coarse kirtle, and the homely necktie, in which these wretched representatives of Mary dressed themselves up, for the exhibition of a queen dignified, refined, and elegant;—a queen whom, according to their own account, 'God had indowit with mony gude and excellent gifts and virtues!' The letters have come down to us in the French, the Scottish, and the Latin languages. Dr. Robertson, the ablest and most persevering of all Mary's enemies, supposes that the French originals are lost, but that two or three sentences of each of these originals were retained, and prefixed to the Scottish translation; and that the French editor, ob-

serving this, foolishly concluded that the letters had been written partly in French and partly in Scottish. The Dr.'s observations have been examined by Mr. Whitaker; who makes it clear, we think, that the learned historian has occasionally mistaken the sense of the Latin, the French, and even the Scotch; and that he has forgotten to point out either the elegance or the spirit of any particular clauses in his pretended originals. The same masterly vindicator of Mary turns his antagonist's artillery against himself; and demonstrates, that such variations as he has thought sufficient to prove the existence of a former French copy, are diffused over all the letters.

But in Murray's receipt, in September 1568, there is mention of other vouchers beside the letters. He acknowledges that he also received from Morton contracts and sonnets or love-verses. These remarkable papers, though said to have been found upon the 20th of June 1567, appeared not till September 1568. The general arguments which affect the authenticity of the letters apply to them in full force; for, as the original letters were undoubtedly in Scotch, the original sonnets were as certainly written in French. This has been completely proved by Dr. Robertson, and is fully admitted by Mr. Whitaker. The sonnets have every external and internal evidence of forgery in common with the letters, and they have some marks peculiar to themselves. In particular they make the love of Mary still more grovelling than the letters made it; and, with a degree of meanness, the author of the sonnets has made the queen consider it as 'na lytill honor to be maistres of her subjects' gudies!' The sonnets, though undoubtedly spurious, prove the full conviction in the minds of the rebels, of what in an unguarded moment they actually confessed to Throgmorton, and was manifest to all the world: viz. that 'the queen their sovereign was led captive, and by fear, force, and other extraordinary and more unlawful means, compelled to become bed-fellow to another wife's husband.' 'The makers of these papers,' says Mr. Whitaker, 'have broken through all the barriers of their own history. They have started aside from the orbit of their own chronology. They have taken a flight beyond the bounds of their own creation.' This mass of forgery was clandestinely shown to Elizabeth's commissioners during the conferences at York. See SCOTLAND. It was shown again to the same commissioners and others during the conferences at Westminster. But neither Mary nor her commissioners could ever procure a sight of a single letter or a single sonnet. By the bishop of Ross and lord Herries she repeatedly demanded to see the papers said to be written by her; but that request, in itself so reasonable, Elizabeth, with an audacity of injustice, of which the history of mankind can hardly furnish a parallel, refused. Mary then instructed her commissioners to demand copies of the letters and sonnets; and offered, even from these, to demonstrate, in the presence of the English queen and parliament, and the ambassadors of foreign princes, that the pretended originals were palpable forgeries. Even this demand was denied her; and there is undoubted evidence still existing, that neither

she nor her commissioners had so much as a copy of these criminal papers, till after those important conferences had for some time been at an end. When Tytler's Enquiry into the Evidence, produced by the Earls of Murray and Morton against Mary Queen of Scots, was first published, it was reviewed in the Gentleman's Magazine by the late Dr. Johnson. The review, after giving a brief analysis of the work, with reflections on the force of the evidence, concludes thus:—'That the letters were forged is now made so probable, that perhaps they will never more be cited as testimonies.' The character of Mary may therefore be left to the reflection of the reader. To such as wish for farther satisfaction we would recommend the study of the writings of Buchanan, bishop Leslie, Goodal, Robertson, Hume, Tytler, Sir David Dalrymple, Stuart, and Whitaker. Mr. Laing has at a more recent period revived this controversy; but we cannot feel that he has added much to the previous evidence. His work, however, should also be consulted. Queen Mary wrote, 1. Poems on various occasions, in the Latin, French, and Scots languages. One of her poems is printed among those of A. Blackwood; another in Brantome's Dames Illustres, written on the death of her first husband Francis. 2. Consolation of her long Imprisonment, and Royal Advice to her Son. 3. A copy of verses, in French, sent with a diamond ring to queen Elizabeth. There is a translation of these verses among the Latin poems of Sir Thomas Chaloner. 4. Genuine Letters of Mary queen of Scots, to James earl of Bothwell; translated from the French, by E. Simmonds, 1726. There are, besides, many other of her epistles to queen Elizabeth, secretary Cecil, Mildmaye, &c., which are preserved in the Cottonian, Ashmolean, and other libraries.

MARY II. queen of Great Britain, eldest daughter of James II., by his first wife, was born at St. James's in 1662. She was educated a protestant, and married to William III. of Nassau, then prince of Orange, in the sixteenth year of her age. She staid in Holland with her husband till February 12th, 1689, when she came over, and was proclaimed queen of England, &c. She was an equal sharer with her husband in all the rights belonging to the crown; but the administration was lodged solely in the king. She studied much, and devoted much of her leisure to architecture and gardening. She was zealous for a reformation of manners, and charitable in the highest degree, without ostentation. This excellent queen died on the 28th of December, 1695, at Kensington, of the smallpox, aged thirty-three. In her ears lost a protectress, the unfortunate a mother, and the world a pattern of virtue. She was tall, of a majestic graceful mien, her countenance serene, her complexion ruddy, and her features beautiful.

MARY DE MEDICIS, wife of Henry IV., king of France, was declared sole regent of the kingdom in 1610, during the consternation which the assassination of that king had occasioned. See FRANCE. By her ambitious intrigues, the nation lost all its influence abroad, and was torn to pieces at home by contending factions. After several vicissitudes of fortune, she was abandoned by her son Louis XIII., whose reign had

been constantly disturbed by the civil commotions she had occasioned; and died in indigence at Brussels, in 1642, aged sixty-eight. She built the superb palace of Luxembourg at Paris, and embellished that city with aqueducts and other ornaments.

MARY'S (St.), a county of Maryland, United States, bounded north-east by Calvert county, east by Chesapeake Bay, south-west by the Potomac, and west by Charles county. Chief town Leonard's Town.

MARY'S (St.), a river of the United States, which divides Georgia from East Florida, and runs into the sea. Long. 81° 40' W., lat. 30° 43' N. A town of the same name stands at its mouth, the frontier town of Georgia, and a place of considerable trade during the late wars. It is 130 miles S. S. W. of Savannah. Long. 81° 43' W., lat. 30° 43' N.

MARY'S RIVER (St.), or ST. MARY'S STRAITS, a river or strait of North America, connecting lakes Huron and Superior. It is seventy miles in length, and divided into several channels. There are two forts on it.

MARY'S FALLS (St.), a cataract in St. Mary's river, between lake Superior and lake Huron. These falls do not descend perpendicularly, as those of Niagara, but consist of a rapid, which continues nearly three quarters of a mile, over which canoes, well piloted, may pass. At the bottom nature has formed a most commodious station for catching the fish, which are taken here in immense shoals.

MARYLAND, one of the United States of North America, bounded north by Pennsylvania and Delaware, east by Delaware and the Atlantic, south-west and west by Virginia. It is 196 miles long, and 120 broad; containing 13,950 square miles. Population, in 1790, 319,721; in 1800 349,692; and in 1810 380,546; of whom 111,502 were slaves, and 33,927 free blacks. The population in 1830 amounted to 446,913.

The counties, population, and chief towns are exhibited in the following table:—

Counties.	Pop.	Chief Towns.
Alleghany . .	10,602	Cumberland.
Ann Arundel . .	28,295	Annapolis.
Baltimore . .	40,251	Baltimore.
Cecil . . .	15,432	Elkton.
Calvert . . .	8,899	St. Leonard's.
Caroline . . .	9,070	Denton.
Charles . . .	17,666	Port Tobacco.
Dorchester . .	18,685	Cambridge.
Frederick . .	45,793	Fredericktown.
Harford . . .	16,315	Belair.
Kent . . .	10,502	Chestertown.
Montgomery .	19,816	Rockville.
Prince George .	20,475	Marlborough.
Queen Ann's .	14,396	Centreville.
St. Mary's . .	13,455	Leonardtown.
Somerset . . .	20,155	Princess Anne.
Talbot . . .	12,947	Easton.
Washington . .	25,265	Hagerstown.
Worcester . .	18,271	Snowhill.
Baltimore City	80,625	
Total	446,913	

Annapolis is the seat of government. Baltimore is much the largest town. The other most considerable towns are Fredericktown, Hagers-town, Easton, Cumberland, Snowhill, Chester-town, and Williamsport. There are twenty-four banks and branches of banks in Maryland; ten of which are at Baltimore.

Here are also a number of respectable literary institutions. Colleges have been established at Annapolis, Abingdon, and Chestertown, but they are not at present in operation. Academies have been established at Easton, Fredericktown, Charlotte Hall, Cambridge, Elkton, and some other places.

Maryland was originally settled by Roman Catholics, who are the most numerous denomination of Christians in the state. The other denominations are Presbyterians, Methodists, Episcopalians, who have thirty-seven ministers, Baptists, who have thirty-three congregations, Friends, who have twenty-eight meetings, Lutherans, Dutch Reformed, Mennonists, &c. The legislature is composed of a senate, and consists of fifteen members, chosen for five years, by electors, and a house of delegates consisting of four members from each of the counties, and two from each of the two cities, Baltimore and Annapolis, chosen annually, on the first Monday in October. The governor and an executive council of five persons are chosen annually, by a joint ballot of both houses, on the second Monday in November. The assembly meets annually on the first Monday in November. This state sends nine representatives to Congress.

Maryland is intersected from north to south by Chesapeake Bay. On the eastern shore of the Chesapeake there are eight counties, Cecil, Kent, Queen Ann, Talbot, Caroline, Dorchester, Somerset, and Worcester. The rest are on the western shore. The principal rivers are the Potomac, which divides this state from Virginia, Susquehanna, Patuxent, Elk, Sassafras, Chester, Choptank, Nanticoke, and Pocomoke. The country on the eastern side of the Chesapeake, with the exception of a small part of the northern extremity, is an extensive plain, low and sandy, and much intersected by rivers and creeks, having but few springs, and abounding in many places with stagnant water. In this part the air in summer is moist, sultry, and disagreeable, and the inhabitants are subject to agues and intermittent fevers, and many of them have a sickly appearance. The Maryland part of the peninsula, included between the Delaware and Chesapeake Bay, is much lower and more uniformly level than the Delaware part. It is also more intersected by rivers and creeks, and the land is of better quality. The soil is well adapted to raising tobacco, wheat, Indian corn, and sweet potatoes. The genuine white wheat, which is said to be peculiar to this state, is raised in some of the counties on the eastern shore.

The country on the western shore of the Chesapeake, below the falls of the rivers, is similar to that on the eastern shore. Above these falls the country becomes gradually uneven and hilly and in the western part of the state it is

mountainous. The western part is crossed by ranges of mountains, which pass through Pennsylvania and Virginia, under various names, as South Mountain, North Mountain, Sideling Hill, Warrior's Evert's, Wills, and Alleghany mountains. The hilly and mountainous parts abound in springs of excellent water, and the climate is highly salubrious and agreeable. The soil is generally a red clay or loam, and much of it is excellent, producing good crops of wheat, Indian corn, hemp, and flax. There are also fine orchards; and apples, pears, peaches, plums, and cherries are abundant. Of peaches, the inhabitants make large quantities of peach brandy, and of apples, apple brandy and cider. The forests abound in nut-bearing trees, which feed great numbers of swine. These swine run wild, and, when fattened, are killed, barded, and exported in great quantities. Beef and mutton are also plentiful. Some cotton for domestic use is raised in this state, but it is of inferior quality.

The most considerable export from this state is that of flour; and, next to this, that of tobacco. The other exports are iron, lumber, Indian corn, pork, flax-seed, beans, &c. The total amount of exports, in 1816, was 7,338,767 dollars. The trade of the state is principally carried on from Baltimore with the other states, with the West Indies, and various parts of Europe.

This state abounds with mines of excellent iron ore, and has also some coal. Furnaces have been erected in various parts for the manufacture of pig and bar iron, cannon, stoves, &c. There are a number of glass works, paper mills, &c. Vast quantities of rye are distilled into whiskey, but the most considerable production is flour.

MARYLEBONE, a borough of England, in the county of Middlesex, forming the north-west part of London, and including the parishes of Marylebone, St. Pancras, and Paddington. It returns two members to parliament. Population 240,000.

MASAFUERO, an island of the South Pacific Ocean, situated to the west of Juan Fernandez about ninety-three miles, both being nearly in the same latitude. It is high and mountainous, of a triangular form, and about twelve miles in circumference. The south part is much the highest. There is plenty of wood, water, and fish all round; but the approach to the shore is bad, from the quantity of stones at the bottom.

MASBOTHÆI, MASBUTHÆI, or MESBOTHÆI, the name of a sect, or rather of two sects; for Eusebius, or rather Hegesippus, whom he cites, mentions two different sects of Masbothæans. The first was one of the seven Jewish sects before the birth of Christ: the other was one of the seven sects that arose out of Judaism, and proved very troublesome to the church. The name is derived from the Hebrew שבת *shabat*, to rest or repose, and signifies idle, easy, indolent people. Eusebius supposes they had been so called from one Masbotheus their chief; but it is more probable that their name is Hebrew, or Chaldaic, signifying a sabbatarian, or one who professes to keep the sabbath strictly. Valesius makes them two distinct sects; the former a sect of Jews before, or at least contemporary with Christ; and the latter a sect of heretics

descended from them. Rufinus distinguishes them in their names: the Jewish sect he calls Masbutheï; and the heretics Masbutheani. They were a branch of the Simonians.

MASCAT, a considerable sea-port of Arabia, the best of all those on its eastern coast: all the others, indeed, from Rosalgate to the entrance of the gulf, are tributary to it. Originally tributary to Ormus, it was taken in 1507 by Albuquerque, after an obstinate defence, and continued for nearly 150 years in the possession of the Portuguese. About 1648, however, they were obliged to yield it back to the natives. At the close of the seventeenth century, the Arabs of Mascat became such formidable pirates, as to give alarm to the English, who formed plans for possessing themselves of the place. Since that time they have become more commercial. The trade is now extensive with the British settlements in India, the Malay peninsula, the Red Sea, and the east coast of Africa, and the government of the Imaum is the most civilised of any in this neighbourhood: a stranger it is said may walk the streets without molestation even during the night; and goods lie exposed and untouched night and day. The town is strongly fortified, and none but Arabs and Banians are allowed to reside here; strangers must occupy mat houses without the gates. Vessels are not allowed to depart or enter after dark. The harbour, formed by high land on one side and Mascat Island on the other, is entered from the north and defended by three forts. A large fleet may lie here in safety. Long. 59° 15' E., lat. 23° 38' N.

MASCLEFF (Francis), was at first a curate in the diocese of Amiens, the place of his birth, and afterwards theologian to the virtuous bishop De Brou. He was appointed to the charge of a seminary of learning under that prelate, which he merited both by his piety and learning. The oriental languages were as familiar to him as his native tongue. He was made canon of Amiens in 1706. But his opinions on the Jansenist controversy were so offensive to Sabatier, that he was removed from the seminary and from almost every other public office which he held. He then devoted himself to study with so much ardor, that he contracted a disease of which he died November 14th, 1728, aged sixty-six. His principal works are, 1. A Hebrew grammar in Latin; Paris, 1716, 12mo. 2. Les Conférences Ecclesiastiques du diocese d'Amiens, in 12mo. 3. Le Catechisme d'Amiens, in 4to. 4. Une Philosophie et une Théologie, in MS.

MASCULINE, *adj.* } Fr. *masculin*; Lat. *masculinus*. Male;
MASCULINELY, *adv.* }
MASCULINENESS, *n. s.* } virile; pertaining to, or resembling the male sex; bold; vigorous: masculinely, like a man: masculineness, manliness.

Pray God, they prove not masculine ere long!

Shakespeare.

Anselm tells me, you have done most masculinely,
 And play the grator. *Ben Jonson's Catiline.*

His long beard noteth the air and fire, the two
 masculine elements, exercising their operations upon
 nature, being the feminine. *Pecolam on Drabing.*

O! why did God,

Creator wise, that peopled highest heaven
 With spirits masculine, create at last

This novelty on earth, this fair defect

Of nature?

Milton's Paradise Lost.

You find something bold and masculine in the air
 and posture of the first figure, which is that of Vir-
 tue. *Addison.*

MASCULINE. See **MALE**.

MASCULINE, in grammar. See **GRAMMAR**. In Latin, Greek, French, &c., most nouns are ranged under the masculine or feminine genders. This, in many cases, is merely arbitrary, and varies according to the languages, and even according to the words introduced from one language into another. Thus the names of trees are generally feminine in Latin, and masculine in the French. The genders of the same word are also sometimes varied in the same language. Thus *alvus*, according to Priscian, was anciently masculine, but is now feminine; and *navire*, a ship, in French, was anciently feminine, but is now masculine. See **GRAMMAR**.

MASCULINE SIGNS. Astrologers divide the planets and signs into masculine and feminine by reason of their qualities, which are either active, and hot or cold, accounted masculine; or passive, dry, and moist, which are feminine. On this principle, they call the sun, Jupiter, Saturn, and Mars, masculine; and the moon and Venus feminine. Mercury, they suppose, partakes of the two. Among the signs, Aries, Libra, Gemini, Leo, Sagittarius, Aquarius, are masculine; Cancer, Capricornus, Taurus, Virgo, Scorpio, and Pisces, are feminine.

MASERES (Francis), cursitor baron of the Exchequer, and an accomplished scholar, was born in the year 1731. He received the earlier part of his education under Dr. Wooddeson, of Kingston-upon-Thames, whence he removed to Clare Hall, Cambridge, of which society he afterwards became a fellow. In 1752 he and Dr. Porteus, afterwards bishop of London, obtained the two chancellor's medals. Afterwards entering at the Temple, and being called to the bar, he obtained the appointment of attorney-general of Quebec, from which situation he was, some years after, on his return to England, raised to the dignity of cursitor, baron, of the exchequer. He was a distinguished mathematician, and published in 1759 a treatise on the Negative Sign. He also printed a collection of *Scriptores Logarithmici*, a work in 6 vols. 4to.: A Treatise on Life Annuities, with several historical tracts; and by his liberality induced the Rev. Mr. Hellins to undertake his edition of Colson's translation of Agnesi's *Istituzioni Analytiche*. This valuable work appeared in 1804. Baron Maseres, who was distinguished for his fine and strong sense and liberality, died at Reigate, in May 1824, aged ninety-three.

MASH, *n. s. & v. a.* Saxon *myrcung*; Teut. *misching*; Fr. *mascher*; Dan. *mask*. A mixture of grains for medicine, or in brewing: to beat into, or make such mixture.

The pressure would be intolerable, and they would
 even mash themselves and all things else apices.

More.

When mares foal, they feed them with *mashes*, and
 other moist food. *Mortimer's Husbandry.*

What was put in the first *mashing*-tub draw off, as
 also that liquor in the second *mashing* tub. *Id.*

Put half a peck of ground malt into a pail, then put to it as much scalding water as will wet it well; stir it about for half an hour till the water is very sweet, and give it the horse lukewarm: this *mask* is to be given to a horse after he has taken a purge, to make it work the better; or in the time of great sickness, or after hard labour. *Farrier's Dictionary.*

To break the claw of a lobster, clap it between the sides of the dining-room door: thus you can do it without *masking* the meat. *Swift.*

MASH, or } Saxon *max*; Belgic *masche*;
MESH, *n. s.* } Teut. *mascher*, from Goth. *meisa*,
to divide. The space between the threads of a net.

To defend against the stings of bees, have a net knit with so small *mashes*, that a bee cannot get through. *Mortimer.*

MASHAM (Abigail), a favorite of queen Anne, and noted in history for her court intrigues, was the daughter of Mr. Hill, a rich merchant of London, who married the sister of Mr. Jennings, the father of the duchess of Marlborough. Her father becoming a bankrupt, she was obliged to become the attendant of a baronet's lady, whence she removed into the service of her relative, lady Churchill, who procured her the place of waiting-maid to the princess Anne. After her mistress ascended the throne, she retained her situation, and possessed great influence with her. Her marriage with Mr. Masham, in 1707, occasioned an open quarrel with lady Marlborough, who was in consequence of it deprived of her majesty's confidence. Harley, afterwards earl of Oxford, now connected himself with the new favorite; a change of ministry took place, and in 1711 Mr. Masham was raised to the peerage. He and his wife appear to have been actively engaged in the intrigues in favor of the house of Stuart. Lady Masham outlived the queen many years, and died at an advanced age.

MASINISSA, a king of Numidia, who at first assisted the Carthaginians in their wars against Rome; but afterwards joined the Romans, and became the firmest ally they ever had. See CARTHAGE and NUMIDIA. He died in his ninety-seventh year, and ninetyeth of his reign, A. A. C. 149.

MASK, *n. s.*, *v. a.* & *v. n.* } French *masque*;
MASK'ER, *n. s.* } Belgic *mascheric*;

Span. *muscara*, *muscarada*; of Arab. *maskh*. A disguise, particularly of the face; a visor; hence an entertainment at which the guests appear in visors, and a particular dramatic performance; any shuffle, subterfuge, or pretence: to mask is, to disguise with a visor; cover; hide: as a neuter verb, to revel; play in mask: a masker is one who thus revels or performs.

Now Love pulled off his *mask*, and shewed his face unto her, and told her plainly that she was his prisoner. *Sidney.*

What will grow of such errors as go *masked* under the cloke of divine authority, impossible it is that the wit of man should imagine, till time have brought forth the fruits of them. *Hooker.*

Since he did neglect her looking-glass,
And throw her sun-expelling *mask* away;
The air hath starved the roses in her cheeks,
And pitched the lily tincture of her face.

Shakespeare.

Will you prepare for this *masque* to-night? *Id.*

'Tis not my blood

Wherein thou see'st me *masked*.

Id. Coriolanus.

I to your assistance do make love,

Masking the business from the common eye,

For sundry weighty reasons.

Id. Macbeth.

Tell false Edward,

That Lewis of France is sending over *maskers*,

To revel it with him and his new bride.

Let the scenes abound with light, and let the *maskers* that are to come down from the scene have some motions upon the scene before their coming down. *Shakespeare.*

The *masker* come late, and I think will stay,

Like fairies, till the cock crow them away. *Donne.*

Thus I have broken the ice to invention, for the lively representation of floods and rivers necessary for our painters and poets in their pictures, poems, comedies, and *masks*. *Bacon.*

As when a piece of wanton lawn,

A thin aerial veil is drawn

O'er beauty's face, seeming to hide,

More sweetly shows the blushing bride:

A soul whose intellectual beams

No mists do *mask*, no lazy steams. *Crashaw.*

There is no villainy so great, but it will *mask* itself under a show of piety. *Bp. Hall.*

They in the end agreed,

That at a *masque* and common revelling,

Which was ordained, they should perform the deed. *Daniel.*

This thought might lead me through this world's vain *mask*,

Content, though blind, had I no other guide. *Milton.*

Could we suppose that a *mask* represented never so naturally the general humour of a character, it can never suit with the variety of passions that are incident to every single person in the whole course of a play. *Addison on Italy.*

Too plain thy nakedness of soul espyed,

Why dost thou strive the conscious shame to hide,

By *masks* of eloquence, and veils of pride? *Prior.*

Masking habits, and a borrowed name,

Contrive to hide my plenteitude of shame. *Id.*

MASKELYNE (Nevil), D. D., was born in London in 1732, and educated at Westminster school, whence he removed to Catherine Hall, and next to Trinity College, Cambridge, where he obtained a fellowship. He took his degree of M. A. in 1757; and that of D. D. in 1777. In 1761 he was appointed by the Royal Society to proceed to St. Helena to observe the transit of Venus; in which voyage he determined the method of finding, by lunar observations, the longitude at sea. In 1763 he undertook another voyage to Barbadoes, to ascertain the longitude of that island, and to prove the accuracy of Harrison's time-keeper. On his return home, he succeeded Mr. Bliss as royal astronomer; and in 1767 first published the Nautical Almanac, and a volume of Explanatory Tables. In 1774 Dr. Maskelyne was employed in making observations on the eclipses of Jupiter's satellites at Greenwich; and went the same year to Scotland, to ascertain the gravitative attraction of the mountain Schehallion, in Perthshire. His death took place February 9th, 1811. He was the author of the British Mariner's Guide; containing complete and easy instruc-

tions for the discovery of the longitude at sea and land, 1763, 4to. *Astronomical Observations*, 1784-88, 3 vols. folio.

MASKINONGE RIVER, a river of Lower Canada, issues from a lake of the same name in that ridge of mountains which runs west from Quebec.

MASON, *n. s.* } Fr. *maçon*; Lat. *machinor*;
MA'SONRY. } Greek *μυχαρο*. A builder,

particularly with stone: masonry is the art or act of building in this way or generally.

A **MASON** is a person employed, under the direction of an architect, in raising a stone building. His chief business is to make the mortar; raise the walls from the foundation to the top, with the necessary retreats and perpendiculars; form the vaults, and employ the stones as delivered to him. The tools of implements principally used by them are the square, level, plumb-line, bevel, compass, hammer, chisel, mallet, saw, trowel, &c. See **SQUARE**, &c. Besides the common instruments used in the hand, they have likewise machines for raising great burdens and conducting large stones; the principal of which are the lever, pulley, wheel, crane, &c.

MASON, Charles; an English astronomer, an assistant of doctor Bradley at the royal observatory at Greenwich. He was employed to examine the lunar tables of Mayer, and the result of his labors appeared in Mayer's Lunar Tables, improved by C. Mason, published by order of the Commissioners of the Board of Longitude (London 1787). Mr. Mason was sent to America with a grand sector, to determine the limits of the provinces of Maryland and Pennsylvania. He was accompanied by Mr. Dixon, in conjunction with whom he measured a degree of the Meridian; and an account of their operations was published by doctor Maskelyne in the Philosophical Transactions for 1768. Mason died at Pennsylvania, in February, 1787. He communicated to the royal society an account of observations on the transit of Venus, June 3, 1769, made at Cavan in Ireland, and other papers, which may be found in the Philosophical Transactions.

MASON (William), an elegant English poet, the son of a clergyman in Yorkshire, educated at St. John's College, Cambridge, and elected a fellow of Pembroke Hall, in 1749. In 1748 he published a poem entitled *Isis*, which, being an attack on the university of Oxford, produced a poetical answer from Mr. Warton, entitled the *Triumphs of Isis*. In 1754 he took orders, and was appointed chaplain to the king; and afterwards obtained the living of Aston, and the precentorship of York; which led him to compose a work on Church Music. He was the intimate friend of Gray the poet, who appointed him one of his executors, and whose life and elegy he wrote. He also wrote *Elfrida* and *Caractacus*; and the *English Garden*, both much esteemed; and he translated into English verse *Du Fresnoy's Art of Painting*, to which Sir Joshua Reynolds added valuable notes. He was a zealous whig, and an admirer of the French revolution, till the horrors that accompanied it abated the warmth of his attachment to democracy. He died April 5th, 1797, in consequence of a fall from his carriage.

MASON (John), a dissenting minister of the last century, was educated at an academy at Kibworth in Leicestershire. After being private tutor in the family of governor Feaks, he became pastor of a congregation at Dorking in 1730; and in 1746 removed to Cheshunt. Here he died in February 1763. He was the author of a treatise on Self Knowledge, and four volumes of sermons, published under the title of *Lord's Day Evening Entertainment*, both which became very popular. He also published some tracts on Elocution.

MASONRY, in practical architecture, includes the hewing of stones into the various shapes required in the multiplied purposes of building, the uniting them together by joints, level, perpendicular or otherwise, by the aid of cement, iron, lead, &c., which requires much practical dexterity, with some skill in geometry and mechanics. In our article **ARCHITECTURE** we have noticed the rise and progress of this art in Egypt, Greece, and Italy. Modern masonry is confined more to the working in freestone than in marble, in the former of which these islands abound, which offer many facilities arising from the nature of its quality in reducing it to all the required shapes in modern construction. At Bath, and in all the western counties, they saw it by a toothed saw into smaller scantling, which is again cut by the mason with a hand-saw, and afterwards hewn by an axe; then dragged and smoothed in the same way, according to the required situation or the quality of the proposed work for which the stone is intended. The workman's tools consist of a hand-saw similar to what is made use of by carpenters; a drag, which is commonly nothing more than a piece of an old saw. He has also his chisels and gouges, and gauges and moulds for his sunk and moulded work, which are all afterwards cleaned up by the drag. In Gloucestershire the masons often use planes for their mouldings, the stones there being more crisp and not intersected by shells, &c., which prevent their general adoption with regard to many other freestones.

Portland freestone is the common stone made use of by the masons in London, which is brought from the island of that name, in blocks of almost all dimensions, roughly hewn. Its hardness gives it many requisites to produce exquisite masonry. It is sawn into scantling by the friction of sharp siliceous earth and water, and by means of a framed plate saw of iron. It is afterwards worked by the mallet and chisel to the required form, and then rubbed to a smooth face by hand with sand or grits. Most of our public buildings are composed of this stone; and it has been the practice to make use of it in private ones for the kerbs, strings, fascias, columns, cornices, and balustrades, when all the other parts were of other materials. Internally for the floors of halls, vestibules, staircases, &c. Portland stone is decidedly the handsomest freestone known, and capable of bearing as fine an arras in moulding as marble, which is the probable reason of its preference, although many other freestones might be obtained at half the original cost and without its great additional expense of freight and duty. The latter, how-

ever, has risen so high of late that the Gloucestershire stone is now at the wharfs as its competitor, and is daily coming more into use: it having been already employed in several works of consequence.

The granites of Cornwall, and that called Dundee stone from North Britain are now employed for all works in which great solidity and wear are required. It has been sought for and used at the several docks, also at the new bridges. Its excessive hardness is as much the terror of the London masons as the Gloucestershire stone is for its softness; on account of which has arisen the necessity of bringing to London the workmen, as well as the stone, there not having been found persons in London who would undertake to work it. The bringing of these granites to London, and other places, arose in the first instance from the necessity of finding something more solid and durable for the locks and basins of canals; and hence it is that now all these different qualities of stone are regularly to be found in the market. Modern masons, therefore, will have the credit of effecting more lasting works than those from freestone, by a judicious blending and arrangement of all the several qualities of stones to the various purposes of strength and ornament. A substantial foundation is of the first importance in masonry, without which no work can be considered as durable. However, in modern construction, this vital part of a building is too often intrusted to the carpenter and bricklayer; the former for the purpose of piling such ground as is found inferior, soft, and marshy, and the latter to raise the needful walls in the substructure in which little or no masonry is employed.

The walls of modern buildings are sometimes built for ornament, but more often both it and solidity are required. In London they are regulated by a specific act of parliament; but, the act having been framed more as a protection from fire than as a security against dilapidation, a prudent builder finds it eligible to trust to the law to avoid inconvenienc, but to strengthen his walls beyond the law to prevent their ruin. It is too much to ask for specifics in regard to the thickness of walls; they must be regulated, first, in reference to the nature of the materials to be employed; and, secondly, to the magnitude of the fabric to be erected. Walls of stone may safely be made one-fifth thinner than those of bricks; and brick walls, in the basement and ground stories of buildings of the first rate, should be reticulated with stone to prevent their splitting, a circumstance too much disregarded by our present builders.

A *plinth*, in masonry, is the first stone inserted above the ground; it is in one or more pieces, according to its situation, projecting beyond the wall above it about an inch; its projecting edge sloped downwards, or moulded, to carry off the water that may fall on it.

Ashlering is a term used by masons to designate the plain stone-work of the front of a building, in which all that is regarded is getting the stone (which is commonly no more than a casing to the wall) to a smooth face, called its plain-work. The courses should not be too high, and the

joints should be crossed regularly, which will improve its appearance, and add to its solidity.

The *fascia* is a plain course of stone, generally about one foot in height, projecting before the face of the ashlering about an inch, or in a line with the plinth of the building; it is fluted on its under edge (called by the workmen *throating*), as a check to prevent the water from running over the ashlering; its upper edge is sloped downwards for the same purpose. It is commonly inserted above the windows of the ground stories, viz. between them and those of the principal story.

Cills.—These belong to the apertures of the doors and windows, at the bottom of which they are fixed; their thickness is various, most commonly about four inches and a half; they are also fluted on their under edges, and sunk on their upper sides, projecting somewhat beyond the ashlering, commonly about two inches.

Imposts.—These are insertions of stone with their front-facings commonly moulded, and sometimes left plain, and when so left they are prepared in a similar way to the fascias above described. They form the springing stones to the arches in the apertures of a building, and are of the greatest utility.

Cornice.—This forms the crown to the ashlering at the summit of a building; it is frequently the part which is marked particularly by the architect to designate the particular order of his work, and, when so, it is moulded to that character; hence there are cornices wrought after the three known orders in architecture, viz. the Doric, Ionic, and Corinthian, when perhaps no column of either is employed in the work, the cornice alone designating the particular style of the edifice. In working the cornice the mason should prepare the top or upper side, by splaying it away towards its front edge, that it may more readily convey off the water which may fall on it. At the joints of each of the stones of the cornice, throughout the whole length of the building, that part of each stone which comes nearest at the joints should be left projecting upwards a small way, called, by workmen, *saddling* the joints; the intention of which is to keep the rain water from entering them, and washing out the cement; such joints, however, should be chased or indented, and such chases should be run full of lead. When dowels of iron are employed they should be fixed by melted lead also.

Blocking course.—This is a course of stone traversing the top of the cornice, to which it is fixed: it is commonly in its height equal to the projection of the cornice. It is of great utility in giving support to the latter by its weight, and to which it adds grace. It at the same time admits of gutters being formed behind it to convey away the superfluous water from the covering of the building. The joints in it should always cross those of the cornice, and should be plugged with lead, or cramped on their upper edges with iron. The Romans sometimes *dove-tailed* the joints of such courses of stone.

Parapets.—These are of great ornament to the upper part of an edifice. They were used by the Greeks, and afterwards by the Romans, and

are composed of three parts, viz. the plinth, which is the blocking course to the cornice; also, the shaft, or die, which is the part immediately above the plinth. It has a cornice, which is on its top, and projects in its mouldings sufficiently to carry off the rain-water from the shaft and plinth. In buildings of the Corinthian style the shaft of the parapet is perforated in the parts immediately over the apertures in the elevation, and balustrade enclosures are inserted in the perforations. The architects have devised the parapets with reference to the roof of the building which it is intended to obscure.

Pilasters.—In modern design these are frequently very capriciously applied. They are vertical shafts of square-edged stone, having but a small projection, with capitals and bases like columns: they are placed by us often on the face of the wall, and with a cornice over them. In Greek architecture they are to be met with commonly on the ends of the walls behind the columns, in which application their face was made double the width of their sides, their capitals differed materially from those of the columns which they accompanied, they were somewhat larger at bottom than at top, but without any entasis or swell. The best examples are to be found in Steuart's Ruins of Athens, viz. to the Propylea, temple of Minerva Polias, &c. &c.

Architraves adorn the apertures of a building, projecting somewhat from the face of the ashlering; they have their facing sunk with mouldings, and also their outside edges. When they traverse the curve of an arch they are called archivolts. They give beauty to the exterior of a building, and the best examples of them are to be found in the ancient Greek buildings, and in many also in Italy.

Rusticating, in architecture and masonry, consists in forming horizontal sinkings or grooves in the stone ashlering of an elevation, intersected by vertical or cross ones, perhaps invented to break the plainness of the wall, and to denote more obviously the crossing or bond of the stones. It is often formed by splaying away the edges of the stone only; in this style the groove forms the elbow of a geometrical square. Many architects omit the vertical grooves in rustics, so that their walls present an uniform series of horizontal sinkings. The French architects have been very fond of this method, as may be seen in the buildings at Paris; and the bank of England is an instance of it in this country. There are abundance of ancient examples in each of the three manners.

Columns.—These comprise, generally, a conoidal shaft, with a small diminution upwards to their upper diameter, amounting generally to about one-sixth less than the lower diameter. They have sometimes a swell or entasis in their whole height (see article ARCHITECTURE), but this practice is by no means general. The Greek ruins do not seem to countenance such a departure from nature, nevertheless it is found to have been commonly practised among the Roman buildings. The proportions of columns from the Egyptians to the Greeks have varied but little: the columns of the former, in their large temples, as at Thebes amount to about four and a half

diameters only in their height. The columns of the Parthenon, at Athens, are little more than five. In the best Roman examples they were increased to upwards of seven diameters. The columns of the Grecian remains are fluted, and the fluting differs in each example. The Doric shafts have their flutes in very flat segments finished to an arris. To the other columns to the temples of Eretheus, Minerva Polias, &c. (both of the Ionic style), flutings of the semi-ellipsis shape with fillets were adapted. But, for detailed particulars of the proportions and construction of columns, see our article ARCHITECTURE, part II.

The mode of erecting columns into screens or porticoes remains to be treated on. The Doric column was effected in Greece without a base, it having a large diameter which compounded for this deficiency. This column was approached by three steps, the third or last forming the floor on which it was built. The lower shafts, as well as the intended intercolumniation, were accurately marked out on the floor, and on the parts to which the columns were designed to be placed. A circle was drawn about two-sixteenths of the diameter of that of the column, which was sunk down. The lower shaft was accurately shaped at its lowest extremity to the proposed diameter, leaving it so much longer as to fit into the sinking in the upper step, which formed for it a kind of rebate; by thus fixing all the shafts in the floor their intercolumniations were exactly preserved. The column is composed of blocks of at least a diameter in height, exactly jointed, and, by the Greeks, without the least cement between them. In the centre of each joint were made square sinkings for the purpose of putting in a joggle; this joggle enters both the upper and lower shafts, and serves to prevent the moving or fracture of the column by any lateral thrust it might receive. The joggles in the columns of the Parthenon were of olivewood; they are commonly with us of iron painted over, or of lead; and, in columns of marble, they are copper, the latter metal being preferred by reason of its not being so liable to oxydate as the former, and consequently not so liable to stain the stone, which is too often the case by iron joggling.

The joining of columns in free-stone has been found more difficult than in marble, and the French masons have a practice to avoid the failure of the two arrisses of the joint, which might be borrowed with success for the constructing of columns of some of our softer free-stones. It consists in sinking away the edge of the joints, by which means a groove is formed at every one, throughout the whole height of the column. Travellers, who have seen their porticos, have compared them to cheeses piled one on the other, the courses appearing, by this practice, to be so regularly marked. This method is not had recourse to but for plain shafts; it is not altogether of modern invention, as there are some ancient remains in which it appears, but in them it may be conjectured to have been for a very different purpose. It served to admit the shafts, being adorned by flowers and other insignia on the occasion of their shows and games. In the French capital they even now, on their public

illuminations, affix rows of lamps on their columns, making use of these grooves to adjust them regularly, which produces a very good effect.

The shafts of columns, in large works intended to be adorned by flutes, are erected plain, and the fluting chiselled out afterwards. The ancients commonly formed the two extreme ends of the fluting previously, as may be seen in the remaining columns of the temple of Apollo, in the island of Delos, a practice admitting of great accuracy and neatness. The finishing the detail of both sculpture and masonry on the building itself was a universal practice among the ancients: they raised their columns first in rough blocks, on them the architraves and friezes, and surmounted the whole by the cornice, finishing such parts only down as were not conveniently to be got at in the building; hence, perhaps, in some measure, arose that striking proportion of parts, together with the beautiful curvature and finish given to all the profiles in Grecian buildings.

Pavements have occupied considerable attention in architecture, and consequently in masonry. The Greek temples were paved with white marble, the same as that of which the temple itself was constructed; and consisted of large squares joined with great precision, and of such thickness as secured their stability. There does not, however, appear in Greece such marks of luxury and extravagance in the decorative parts of their buildings as the opulent Romans displayed, who, not content with inserting in their floors pieces of marble of the most beautiful kind, had them painted and varied with different colors. This custom commenced under Claudius. Under Nero they began to cover the marble with gold, thus the marble of Numidia was gilded, and that of Phrygia was stained with purple.

Arching is that in which the modern mason has certainly excelled the ancient. The masonry of an arch, herein to be treated of, is so intimately connected with the theory, that it appears almost impossible to explain the one without giving some information respecting the other; in theory, an arch may be explained as follows, viz. to consist of series of stones, called *voissors*, in the shape of truncated wedges, which resist each other, through their inclined sides, by means of that weight whereby they would otherwise fall, and are suspended in the air without any support from below, where a concavity is formed. The *voissors* are subject to forces which arise from their own weight, from external pressure, from friction, and the cohesion of matter: all these forces compose a system which ought to be in equilibration; and, moreover, that state ought to have a consistence firm and durable. It was not till near the end of the seventeenth century, when the Newtonian mathematics opened the road to true mechanical science, that the mathematicians directed any part of their attention to the theory of arches. Dr. Hook gave the first hint of a principle, when he affirmed, that the figure into which a chain or rope, perfectly flexible, will arrange itself when suspended from two hooks, becomes, when inverted, the proper form for an arch constituted of stones of uniform weight and size. The reason on which he

grounded his assertion, is, simply, that the forces with which the parts of a standing arch press mutually on each other, in the latter case, are precisely equal and opposite to those with which they pull each other in the case of suspension. This principle, true as far as it goes, gave rise to most of the specious theories of the mathematicians; for they did not consider that, though an arch of equal *voissors* might be thus balanced, it would require much other matter to be placed over it, to fill up the space between the extrados and a road-way, if used for the purpose of a bridge, and that this superincumbent mass must necessarily destroy the equilibrium previously existing in the unloaded arch. There is a certain thickness in the crown which will put the catenaria in equilibrio, even with a horizontal road-way; but this thickness is so great that the pressure at the vertex is equal to the horizontal thrust; the only situation, therefore, in which the catenarian would be proper, is in an arcade, carrying a height of dead wall above it. During these discussions, on the celebrated catenaria, a new system of arching developed itself. It was deduced from the consideration of the arch-stones being frustrums, or parts of wedges; hence the mathematical properties of the wedge were introduced into the science, and employed to establish the theory of what were called balanced arches; this practice was taught in France by La Hire, Parent, Varignon, Belidor, Riou, &c., and some bridges were formed on its principles, viz. Pont La Concorde at Paris, and also one arch at Nieully. It required that the arch-stones should be as long as economy would admit, and, if possible, to fill up all the space between the intrados and extrados of the bridge; and further, they are all to be locked together by bars and wedges of iron, which will prevent the possibility of their sliding, of the arch quitting the centering; a circumstance not before accomplished in arching. The theorist, not yet having brought the practical architect to adopt his visions, raised another system, which is said to secure a perfectly equilibrated structure, by making an equality at every point of the curve. The deduction from this theory consists in making the height of the wall incumbent on any point of the intrados, directly as the cube of the secant of the curve's inclination to the horizon at that point, or inversely as the radius of curvature there. It must be added, that this theory expects the joints of the *voissors* to be perfectly smooth, and not be connected by any cement, and therefore to sustain each other merely by the equilibrium of their vertical pressure; and the theorist says, 'an arch which thus sustains itself must be stronger than another which does not; because, when in imagination we suppose both to acquire connexion by cement, the first preserves the influence of this connexion unimpaired; whereas, in the other, part of the cohesion is wasted in counteracting the tendency of some parts to break off from the rest by want of equilibrium.' From these systems have been made tables for forming arches to equilibrate, by which the nature of each *voissor* may be found to any degree of curvature; and Dr. Hutton has simplified it for practical men.

The practical mason, however neat in the execution of his work, finds it extremely difficult to get the joints of the arch-stones so smooth as is required by these systems; and, even if he succeeds in doing so, circumstances may take place in the construction of the work to render it useless; for instance, the abutments may sink a little, and one may retire more than another, hence will arise an alteration in the arch, and, consequently, in the shape of the joints; but, there are other circumstances to be anticipated, known to the practical architect (if even a sinking of the abutments should not take place), which is an alteration in the centre on which the masonry is raised. It is ascertained that, however firmly it may be constructed and supported, its curvature will vary as it receives the weight of the stone arch. The impossibility that the centre could be loaded all at once, produces this variation; but, even if the centre should be so constructed as to remain firm and unalterable, a sinking will ensue on its removal; this, as the practice is, is done gradually, and all the arch-stones in some measure follow it; the middle ones squeezing the lateral ones aside, which compresses all between them; hence the latter arch stones alter their shape, a sinking of the crown ensues, consequently a general change of form of not only the joints, but of the arch also. Some architects, to secure as little friction in the joints as possible, have covered their surfaces with sheet-lead, and this practice was followed in the bridge of Blackfriars, at Norwich, by Mr. Scane. It cannot be too strongly recommended, to the mason concerned in arching, to make all the joints meet as correctly as possible, using the least possible quantity of cement between them: the practice of wedging in the voissiors at the crown of the arch, commonly practised, should be done with caution; for, instead of preventing a sinking, it may endanger the whole arch. Peronet, who was architect to so many bridges in France, and whose experience and sagacity in this branch of practice had developed more than a whole college of theorists could do, rejected it. His rejection of it did not apply however to the principle, but to the uncertainty in the persons employed to perform it; he conceived that the stones might be so fractured in forcing them in, that no two flat surfaces would present themselves in that part of the arch. Nieully, one of the finest bridges he built, and which the writer of this article has repeatedly examined, is of a very superior construction; the road occasions very little elevation, no more than sufficient to keep it dry. The arches and piers are quite unique in their shape, of considerable span, and so apparently flat and thin in the crown, as at first sight to create a doubt if they be of stone. It is a principle in the French bridges that the passengers may see their roadway from one end to the other. It would not be endured by them to be ascending mountains over the inland waters.

The figures of arches are as various in their shape as the most fastidious ideas of convenience can require; they were, in the bridges of the Romans, semi-circles; by the moderns, of every form and curvature fancy can suggest, or geometry

delineate; but the practical mason should endeavour, in effecting arches, if he expects the praise of intelligent men, to protect them by some reference to known principles. Every arch of curvature (and it cannot be an arch without it, although it may be a lintel), should be described by its praxis in known geometry, and if it require one, two, or more centres to develop its form, the workman should not forget that these points once ascertained are his guides to find the shape of the voissiors or arch-stones. The joints of an arch are all traced from the centres of their curvature, so that as a general axiom it may be assumed, for instance, speaking of a semi-circle, that its centre supplies the principle of giving form to the voissiors; if a segment, the centre of the circle of which it is the segment, be its versed sine what it may. If an ellipsis, which is neither more nor less than three segments, the arch-joint must be drawn from the centres of each correspondent circle, and so on to the parabola, hyperbola, &c.: if these principles were attended to by the practical mason, the failure of so many arches in the smaller works would be prevented, and the arch itself appear more neat; inasmuch as principle would be opposed to that which is most commonly done by chance, as may be seen by an attentive observer, on looking at the arches in some of our buildings.

Of domes.—A dome is said to be less difficult of construction than an arch, because the tendency of each part to fall is counteracted not only by the pressure of the parts above and below, but also by the resistance of those which are situated on each side. A dome may therefore be erected without any temporary support, like the centre which is required for the construction of an arch, and it may at last be left open at the summit, without standing in need of a key-stone.

The Greeks seem no more to have employed domes than they did arches, one (the monument of Lysicrates at Athens) only having been preserved, and in that there is nothing to require any of the principles of the tambour-wall, as it is composed of a single piece. The Romans certainly affected domes, in which they developed great enterprise, genius, and taste. Vitruvius says nothing about them, though he gives proportions for his monopetereal buildings, as, probably, they were but little employed in his time; but we have still existing the pantheon of Agrippa, over which there is a beautiful hemispherical roof, and it is probable that all their round temples were so roofed; indeed, in the remains of the Sybil's temple at Tivoli, there are evident marks of such a covering.

The masonry of domes must be conducted on similar principles to those recommended for arching, excepting only that the figure of each voissior or wedge will be so shaped as to fit the void in a sphere instead of its sections. The weight of masonry in a dome, however, will require all the force of mind in the architect and mason to prevent its forcing out its lower parts; for instance if it rises in a direction too nearly vertical, with its form spherical, and its thickness equable, it will require to be confined

by a chain or hoop, as soon as the rise reaches to about eleven-fourteenths of the whole diameter; but, if the precaution be taken of diminishing the thickness of the masonry as it rises, it will not require to be so bound.

At Constantinople the church of St. Sophia was covered by a dome, and its history will furnish a useful lesson to the unscientific and careless mason. Anthemius and Isidorus, whom the emperor Justinian had selected as architects the most proper for conducting the works of this celebrated edifice, seem to have known but little of the matter. Anthemius had boasted to Justinian that he would outdo the magnificence of the Roman pantheon, for he would hang a greater dome than it aloft in the air; accordingly he attempted to raise it on the heads of four piers, distant from each other about 115 feet, and about the same height. He had probably seen the magnificent vaultings of the temple of Mars the Avenger, and also of the temple of Peace, at Rome, the thrusts of the vaultings of which were withstood by two masses of solid wall, which joined the side walls of the temple at right angles, and extended sideways to a great distance. It was evident that the walls of this temple could not yield to the pressure of the vaulting, without pushing these immense buttresses along their foundations; he therefore in imitation placed four buttresses to aid his piers. They are almost solid masses of stone, extending at least ninety feet from the piers to the north and to the south, forming, as it were, the side walls of the cross, and effectually secured them from the thrusts of the two great arches of the nave which supported the dome; but there was no such provision against the thrust of the great north and south arches. Anthemius trusted for this to the half dome which covered the semi-circular east end of the church, and which occupied the whole eastern arch of the great dome: but, when the dome was finished, and had stood a few months, it pushed the two eastern piers, with their buttresses, from the perpendicular, making them lean to the eastward, and the dome and half dome fell in. Isidorus afterwards erected some clumsy buttresses on the east wall of the square which surrounded whole Greek-cross, and these were roofed in with it, forming a sort of cloister, leaning against the piers of the dome; and thus opposed the thrusts of the great north and south arches. The dome was now turned for the third time, and many contrivances were adopted for making it extremely light. It was offensively flat, and, except the ribs, roofed with pumice-stone; but, notwithstanding these precautions, the arches settled so as to alarm the architects, and they made all sure by filling up the whole from top to bottom with arcades in three stories. The lowest arcade was very lofty, supported by four noble marble columns, and thus preserved, in some measure, the church in the form of a Greek-cross. The story above formed a gallery for the women, and had six columns in front, so that they did not bear fairly on those below. The third story was a dead wall, filling up the arch, and pierced with three rows of small ill-shaped windows: in this unworkman-like shape it has remained, and is the oldest church in the

world; but it is an ugly misshapen mass of deformity and ignorance, resembling any thing rather than what it was intended for, viz. a beautiful piece of architecture.

But there have been domes constructed since in every part of Europe, combining and displaying, in this species of building, every requisite of beauty and strength. St. Peter's, at Rome, is a superb undertaking; and the set-off to it in this country, of St. Paul's, is another, in which equal talent is developed; but this latter dome is more remarkable for its carpentry than its masonry.

A dome has also been erected to the rotunda of the Bank of England, in which the principles of the ancient one of the pantheon, at Rome, have been followed. It takes its spring from a wall of great thickness, on which it is bedded, furnished by many projections externally graduated like steps, which answer the purpose of buttresses. It is open at its summit, like that from which it is copied, and from which the interior of the building receives its light. It composes, on the whole, a structure unique, and very honorable to the talents of the architect, Mr. Soane.

Masons employ certain technical phrases, by which they designate every part of their work employed in building, some of which have been previously noticed: the value of each description of work is ascertained by a datum to be now explained. It does not appear to have been a very early practice among the surveyors and masons to separate the distinct portions of labor which are employed about their hewn stone into the several different species, calculating the difficulty in each, and apportioning a value commensurate, which is now the universal practice. This manner of assessing the value of the labor, and also of the materials, arose in its beginning from necessity, there having been found no other means of putting down the avarice and injustice of the master artificers. On its first introduction it met with very general opposition from all mechanics; but its rationality, together with its truth and accuracy, soon gave it that ascendancy which it deserved. Hence, at this time, masonry, as well as other artificers' works, is divided and subdivided into several distinct parts, a value being assigned to each, which is found adequately to remunerate all concerned for their toil, as well as the incidental expenses attending on the execution and erection of their several works.

In the admeasurement of mason's work the measurer is provided with two rods, commonly of five feet in length each, divided into five equal parts or feet, and each foot again subdivided into halves and quarter feet: sometimes the feet are also drawn in inches, but this latter method is by no means universal. When the stone to be measured approximates to fractions, the common rule is applied to ascertain them. All the stone is first measured, beginning at that which is fixed nearest to the top of the building, and then calculating the labor: every piece of stone which exceeds two inches in thickness is valued by the cubic foot, and all other stones under that thickness are deemed to be slabs, and are valued at per

foot superficial; these latter generally embrace the paving-stones of all descriptions, as well as chimney-pieces, copings, &c. There are also some portions of the labor as well as the stone which are valued by the foot measure running; of this class are the groovings in rusticated work, flutings in the shafts of columns and pilasters, joints in gallery floors (called joggled joints), rebates in stairs, with the throatings to cills and copings, &c. &c. In the latter description may be included the various sorts of copings employed on the tops of walls and parapets, narrow slips to chimney-pieces, &c. &c. The dimensions are all accurately put down in a book, which for convenience is ruled into three divisions on its left-hand side, the middle being about one-third of the width of those on its sides; this middle column is that in which the inches and parts are expressed, and in the left-hand column the feet, together with the number of times the dimension is to be repeated or added, and the last for placing the quantities when cubed and squared: for in taking the dimensions it often happens that there may be several pieces of stone of the same size, and this the measurer marks in his book, as well as at the same time writing down the nature of the stone, and also the species of labor about it. His dimension book stands thus:

3/6	0	} 3 : 4½	Portland landing.
3	0		
	9		

3/7	6	84 : 4	plain work ditto.
3	9		

3/7	6	22 : 6	groove ditto.
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By thus arranging the dimension book, every particle of stone and labor on it is ascertained with the greatest accuracy and despatch; they are all afterwards to be abstracted, which consists in ruling out a loose sheet of paper into as many columns or divisions, as are required for all the several species of work which have been measured, and writing over the head of each of the columns the particular kind to be inserted in it; for instance, beginning with cube of Portland, all of it which has been measured is brought into the column under that head, plain-work under its head, also sunk-work, moulded work, and the several running measures, all stand respectively; and, when so separated, they are to be cast up at the bottom of each several column, where is to be seen the whole of the several quantities, after which they are made out into bills, beginning with the cubes first, then the superficieses, and lastly the running measures. The works which are valued singly, or by their number, are similarly classed and placed last of all at the bottom of the account. For thus measuring, cubing, and squaring the quantities, and valuing and finishing the account, surveyors charge two and a half per cent. on the gross amount.

The plain-work on stone consists merely in the cleaning up of its surface, and the rule for finding how much of it is to be measured is, by observing that the mason is entitled to all that is not covered, that is, to every part of it which may be seen. Sunk-work embraces that kind of

labor to stone which requires the surface or any other portion of it to be sunk down by chiselling it away. The tops of all window-cills, for instance are sunk for the purpose of more readily conveying away the water which falls on them. Moulded work consists in forming on the edges of the stone certain forms, known in architecture as mouldings, that is, to make it more obvious. Cornices, architraves, and such parts of an edifice in which stone is employed, are fashioned into a variety of curved or other forms. The dimensions of moulded work are ascertained by girting it with a string or piece of tape over to every one and into all its several parts, and then measuring the length of the string or tape so girted, which will be the width of the moulded-work; and the length of the cornice, &c. &c., will be its length, which when squared together will give the superficial quantity of moulded-work. Masons have also their circular-work; this kind of labor is measured in the same way as has been described for the moulded-work, viz. by girting it all round. There are distinct valuations for every one of these different species of labor. Nevertheless, it is not deemed here essential to recite them, as they vary as the price of the workmen's wages does, except in London where they are uniform, but, in the country they are somewhat lower, the value of workmanship being less by reason of the men having much less wages.

MASONRY, FREE, the system of mysteries and secrets peculiar to the society of Free and Accepted Masons. The origin of this society is ancient; but we have no authentic account of the time when it was first instituted, or even of the reason of such an association. In a Treatise on Masonry, published in 1792, by William Preston, master of the Lodge of Antiquity, it is traced from the creation. 'Ever since symmetry began, and harmony displayed her charms,' says he, 'our order has had a being!' By other accounts the history of masonry is only carried up to the building of Solomon's temple. In Dr. Henry's History of Great Britain we find the origin of this society attributed to the difficulty found in former times of procuring workmen to build the vast number of churches, monasteries and other religious edifices, which the superstition of darker ages prompted the people to raise. Hence the masons were greatly favored by the popes, and many indulgences were granted, to augment their numbers. An ancient author, who was well acquainted with their history and constitution, says, 'The Italians, with some Greek refugees, and with them French, Germans, and Flemings, joined into a fraternity of architects, procuring papal bulls for their encouragement; they styled themselves freemasons, and ranged from one nation to another, as they found churches to be built: their government was regular, and, where they fixed near the building in hand, they made a camp of huts. A surveyor governed in chief; every tenth man was called a warden, and superintended the other nine.'

The introduction of masonry to this country has been fixed at the year 674, when glass-making was first introduced: from this time

many buildings in the Gothic style were erected by masons in companies, who called themselves free, because they were at liberty to work in any part of the kingdom. Others derive the institution from a combination among the people of that profession not to work without an advance of wages, when they were summoned from several counties, by writs of Edward III., directed to the sheriffs, to assist in rebuilding and enlarging the castle, together with the church and chapel of St. George, at Windsor. At this time, it is said, the masons agreed on certain tokens, by which they might know and assist each other against being pressed into the service of the king. Preston supposes the introduction of masonry into England to have been prior to the Roman invasion; and says, there are remains yet existing of some stupendous works executed by the Britons much earlier than the time of the Romans; so that he has no doubt of the existence of masonry in Britain even during those early periods. The Druids are likewise said to have had among them many customs similar to those of the masons, and to have derived their government from Pythagoras; but the resemblance cannot now be traced even by the masons themselves. Masonry is said to have been encouraged by Cæsar, and many of the Roman generals who were appointed governors of Britain. Carausius, in particular, patronised learning, and collected the best artificers from many different countries, particularly masons, whom he held in great veneration, and appointed Albanus, his steward, the superintendent of their assemblies. Lodges or conventions of the fraternity began now, it is said, to be introduced, and the business of masonry to be regularly carried on. The masons, through the influence of Albanus, obtained a charter to hold a general council, at which Albanus himself sat as president, and assisted at the reception of many new members. This Albanus was no less than the celebrated St. Alban, the first who suffered martyrdom in Britain for the Christian faith! Mr. Preston quotes an old MS., which mentions that St. Alban was a great friend to masons, and 'gave them 2s. per week, besides 3d. for their cheer,' while, before that time, they had only 1d. per day and their meat. The progress of masonry was greatly obstructed by the departure of the Romans from Britain; still more by the furious irruptions of the Scots and Picts, and afterwards by the ignorance of the Saxons, whom the Britons called in as allies, but who soon became their masters. After the introduction of Christianity, however, the barbarity of these conquerors began to wear off, the arts were encouraged, and masonry began to flourish. Lodges were now formed; but, being under the direction of foreigners, were seldom convened, and never attained to any degree of importance. In this situation it continued till 557, when St. Austin, with forty monks, among whom the sciences had been preserved, came into England, and placed himself, according to the masonic writers, at the head of the fraternity in founding the old cathedral of Canterbury in 600; that of Rochester in 602; St. Paul's in London in 604; St. Peter's in Westminster in 605, and many others. In

640 a few expert brethren arrived from France, and formed themselves into a lodge under the direction of Bennett, abbot of Wirral, whom Kenred, king of Mercia, soon after appointed inspector of the lodges, and general superintendent of masons. During the whole time of the heptarchy, however, masonry was in a low state; but it revived in 856, under the patronage of St. Swithin, whom Ethelwolf employed to repair some religious houses; and from that time gradually improved till 872, when it found a zealous protector in Alfred the Great. He appropriated a seventh part of his revenue for maintaining a number of masons, whom he employed in rebuilding the cities, castles, &c., ruined by the Danes. Under his successor, Edward, the masons continued to hold their lodges, patronised by Ethred, husband to the king's sister, and Ethelwald his brother, to whom the care of the fraternity was entrusted. The latter was a great architect, and founded the university of Cambridge. The complete re-establishment of masonry in England, however, is dated from the reign of king Athelstane: and the grand lodge of masons at York trace their existence from this period.

This lodge, the most ancient in England, dates its foundation in 926, under the patronage of Edwin, the king's brother, who obtained a charter from Athelstane, and became grand master. By virtue of this charter all the masons in the kingdom were convened at a general assembly in that city, where they established their government; and until within the last century no general meetings have been held any where else. Hence the appellation of ancient York masons is well known both in Ireland and Scotland. While prince Edwin lived the masons were employed in building churches, monasteries, &c., and repairing those which had suffered by the ravages of the Danes; after his death the order was patronised by king Athelstane; but on his decease the masons were dispersed, and remained in an unsettled state till the reign of Edgar in 960. They were now collected by St. Dunstan, who employed them in works of the same kind; but, as no permanent encouragement was given them, their lodges soon declined, and masonry remained in a low state for upwards of fifty years. It revived, however, in 1041, under Edward the Confessor, who superintended the execution of several great works. By the assistance of Leofric, earl of Coventry, he rebuilt Westminster Abbey, the earl being appointed superintendent of the masons; and by this architect many other magnificent structures were erected. After the conquest, in 1066, Gundulph bishop of Rochester, and Roger de Montgomery earl of Shrewsbury, both excellent architects, became joint patrons of the masons; and under their auspices the tower of London was begun, though finished only in the reign of William II., who likewise rebuilt London Bridge, and first constructed the palace and hall of Westminster. The masons now continued to be patronised by the sovereigns of England in succession. The lodges assembled during the reign of Henry I. and Stephen; when the society were employed in building

a chapel at Westminster, now the house of commons, and several other works; the president of the lodges being Gilbert de Clare, marquis of Pembroke. During the reign of Henry II., the lodges were superintended by the grand master of the Knights Templars, who employed them in building their temple in Fleet Street in 1155. Masonry continued under the patronage of this order till 1199, when king John succeeded Richard I., and Peter de Colechurch was appointed grand master. He began to rebuild London Bridge with stone, which was afterwards finished by William Alcemain in 1209. Peter de Rupibus succeeded as grand master, and Geoffrey Fitz-Peter, chief surveyor of the king's works, acted as deputy under him.

On the accession of Edward I., in 1272, the superintendence of the masons was entrusted to Walter Giffard archbishop of York, Gilbert de Clare earl of Gloucester, and Ralph lord of Mount Hermer, the ancestor of the Montagues. By these architects the abbey of Westminster was finished. During the reign of Edward III. the brethren were employed in building Exeter and Oriel Colleges in Oxford, Clare Hall in Cambridge, &c., under Walter Stapleton, bishop of Exeter, who had been elected grand master in 1307. Edward III. not only patronised the masons, but studied the constitutions of the order, revised the ancient charges, and added several regulations to the original code. He appointed five deputies to inspect their proceedings in the lodges, which at this period (as appears from the records), were numerous. William a Wykeham was elected grand master, and continued so on the accession of Richard II. He founded both the New College in Oxford, and Winchester College, at his own expense. Under Henry IV. Thomas Fitz-Allan, earl of Surrey, was grand master, who, after the engagement at Shrewsbury, founded Battle Abbey and Fotheringay. On the accession of Henry V. the fraternity were governed by Henry Chicheley, archbishop of Canterbury. In 1425, however, during the minority of Henry VI., an act was made against the meetings of masons, because by such meetings it was alleged, 'the good course and effect of the statutes of laborers were openly violated and broken, in subversion of the law, and to the great damage of all the commons.' But this act was not enforced, and the fraternity continued to meet as usual under archbishop Chicheley. Humphrey, duke of Gloucester, brother to the regent, and guardian of the kingdom in his absence, took the masons under his protection, and they continued not only to meet in safety, but were joined by the king himself; who, in 1442, was initiated into masonry, and from that time spared no pains to become master of the art. He perused the ancient charges, revised the constitutions, and honored them with his sanction. The royal example was followed by many of the nobility, who assiduously studied the art. The king presided over the lodges in person, and nominated William Wanefleet, bishop of Winchester, grand master; who at his own expense built Magdalene College, Oxford, and several religious houses. Eton College, near Windsor,

and King's College at Cambridge, were also founded during this reign. Henry himself founded Christ's College, as his queen Margaret of Anjou did Queen's College in Cambridge. About this time also the masons were protected and encouraged by James I., of Scotland, who, after his return from captivity, became a zealous patron of learning and the arts. He honored the lodges with his presence, and settled an annual revenue of four pounds Scots (an English noble) to be paid by every master mason in Scotland, to a grand master, chosen by the grand lodge, and approved by the crown. His office entitled him to regulate every thing in the fraternity which could not come under the jurisdiction of law-courts; and, to prevent law-suits, both mason and lord, or builder and founder, appealed to him. In his absence they appealed to his deputy or grand warden, who resided next the premises. This flourishing state of masonry was interrupted by the civil wars between the houses of York and Lancaster, which brought it almost totally into neglect. About 1471, however, it revived under Robert Beauchamp, bishop of Sarum, who had been appointed grand-master by Edward IV. as well as chancellor of the garter, for repairing the castle and chapel of Windsor. It again declined under Edward V. and Richard III.; but came once more into repute on the accession of Henry VII. in 1485. It was now patronised by the master and knights of the order of St. John at Rhodes (see MALTA), who assembled their grand lodge in 1500, and chose Henry for their protector. On the 24th of June, 1502, a lodge of masters was formed in the palace, at which the king presided as grand master; and having appointed John Islip abbot of Westminster, and Sir Reginald Bray knight of the garter, his wardens for the occasion, proceeded in great state to the east end of Westminster Abbey, where he laid the first stone of that excellent piece of Gothic architecture, called Henry the Seventh's Chapel. The completion of this building was celebrated in 1507. The palace of Richmond, as well as many other noble structures, was raised under the direction of Sir Reginald Bray; and the colleges of Brazen-Nose in Oxford, and Jesus and St. John's in Cambridge, were all finished in this reign.

On the accession of Henry VIII. cardinal Wolsey was appointed grand-master; who built Hampton Court, Whitehall, Christ Church College, Oxford, with several other noble edifices. Wolsey was succeeded as grand-master in 1534 by Thomas Cromwell, earl of Essex; who employed the fraternity in building St. James's palace, Christ's Hospital, and Greenwich Castle. Cromwell being beheaded in 1540, John Touchet, lord Audley, succeeded to the office, and built Magdalen College in Cambridge, and many other structures. In 1547 the duke of Somerset, guardian to the king, and regent of the kingdom, became superintendant of the masons, and built Somerset House in the Strand; which, on his being beheaded, was forfeited to the crown in 1552. After the duke's death, John Poyntet, bishop of Winchester, presided over the lodges till the death of king Edward VI. in 1553

From this time they continued without any patron till the reign of Elizabeth, when Sir Thomas Sackville accepted the office of grand master. Lodges, however, had been held during this period in different parts of England; but the grand lodge assembled in York, where the fraternity were numerous and respectable. The queen hearing that the masons were in possession of secrets which they refused to disclose, and being naturally jealous of secret assemblies, sent an armed force to York to break up the lodge. This, however, was prevented by Sir Thomas Sackville, who initiated some of the chief officers sent on this duty in the secrets of masonry. These joined with their brethren, and made so favorable a report to the queen, that she countermanded her orders, and never afterwards attempted to disturb the meetings. In 1567 Sir Thomas Sackville resigned the grand mastership in favor of Francis Russel, earl of Bedford, and the celebrated Sir Thomas Gresham; committed to the former the care of the north part of the kingdom; and the south to the latter. The general assembly, however, continued to meet at York, where all records were kept, and to decide upon appeals, &c. Sir Thomas Gresham, during his grand mastership, built the Royal Exchange and Gresham College. From this time masonry made considerable progress; lodges were held in different parts of the kingdom, particularly in London, and its neighbourhood, where the number of the brethren increased considerably. Several other great works were carried on there under the auspices of Sir Thomas Gresham, from whom the fraternity received every encouragement. He was succeeded by Charles Howard, earl of Effingham, who continued to preside over the lodges in the south till 1588, when George Hastings, earl of Huntingdon was chosen grand-master, and continued in office till the queen's death. On the accession of James I. masonry flourished, and lodges were held in both kingdoms. A number of gentlemen returned from their travels, with curious drawings of the Greek and Roman architecture, as well as strong inclination to revive a knowledge of it. Among these was the celebrated Inigo Jones, who was appointed general surveyor to the king.

This distinguished architect being appointed grand master of England, and deputed by the king to preside over the lodges, several learned men were now initiated into the mysteries of masonry; ingenious artists resorted to England in great numbers; lodges were constituted as seminaries of instruction in the sciences and polite arts, after the model of the Italian schools; and the annual festivals regularly observed. The many magnificent structures raised under this master we need not particularise; among the rest he was employed, by the command of the king, to plan a new palace at Whitehall; but, for want of a parliamentary fund, no more of it was ever finished than the banqueting-house. Inigo Jones continued grand master till 1618, when he was succeeded by the earl of Pembroke; under whose auspices many eminent men were initiated, and the mysteries of the order held in high estimation. The earl con-

tinued in office till 1630, when he resigned in favor of Danvers, earl of Danby; who was succeeded in 1633 by Thomas Howard, earl of Arundel, ancestor of the Norfolk family. In 1635 Francis Russel, earl of Bedford, accepted the government of the society: but Inigo Jones having continued to patronise the lodges during his lordship's administration, he was re-elected in 1636, and continued in office till his death. The progress of masonry was now obstructed by the civil wars; but it began to revive under Charles II. who had been admitted into the order during his exile. Some lodges during this reign were constituted by 'leave of the several noble grand masters,' and many gentlemen and famous scholars requested to be admitted into the fraternity. On the 27th of December, 1663, a general assembly was held, where Henry Jennyn, earl of St. Alban's, was elected grand master; who appointed Sir John Denham his deputy, and Mr. Christopher Wren, afterwards the celebrated Sir Christopher, and John Webb, his wardens. At this assembly several useful regulations were made, for the better government of the lodges; and the greatest harmony prevailed among the whole fraternity. The earl of St. Alban's was succeeded by earl Rivers in 1666, when Sir Christopher Wren was appointed deputy, and distinguished himself beyond any of his predecessors, in promoting the prosperity of the lodges which remained at that time, particularly that of St. Paul's, now the lodge of Antiquity, which he patronised upwards of eighteen years. At this time he attended the meetings regularly; and during his presidency made a present to the lodge of three mahogany candlesticks, which at that time were very valuable. They are still preserved, and highly valued. The fire, which in 1666 destroyed a great part of London (See LONDON), afforded ample opportunity for the masons to exert their abilities. Sir Christopher Wren was appointed surveyor-general and principal architect for rebuilding the city, the cathedral of St. Paul, and all the parochial churches erected by parliament. This gentleman, however, conceiving the charge to be too important for a single person, selected for his assistant Mr. Robert Hook, professor of geometry in Gresham College. In 1673 the foundation stone of the cathedral of St. Paul's was laid with great solemnity by the king in person, and the mallet which he used on this occasion is still preserved in the lodge of antiquity. During the short reign of James II. the masons were much neglected, and, at the Revolution, the society was in such a low state that only seven regular lodges were held in London and its suburbs; of these only two, viz. that of St. Paul's and one at St. Thomas's Hospital, Southwark, were of any consequence. But in 1695 king William, having been initiated into the mysteries, honored the lodges with his presence; particularly one at Hampton Court, at which he is said to have frequently presided, during the time that the new part of his palace was building. Many of the nobility also were present at a general assembly held in 1697, particularly Charles, duke of Richmond and Lenox, who was elected grand master for that year;

but in 1698 resigned his office to Sir Christopher Wren, who continued at the head of the fraternity till king William's death in 1702. During the reign of queen Anne masonry made no considerable progress; although several lodges met in 1705, in the north of England, under the direction of Sir John Tempest, bart. grand master. It was therefore determined that the privileges of masonry should not be confined to operative masons, but that people of all professions should be admitted to participate in them, provided they were regularly approved and initiated. Thus the society once more rose into esteem; and on the accession of George I. the masons, now deprived of Sir Christopher Wren, resolved to unite again under a grand master, and revive the annual festivals. With this view, the members of the four lodges then existing in London met at the Appletree tavern in Charles Street, Covent Garden; and, having voted the oldest master-mason then present into the chair, constituted themselves a grand lodge pro tempore. It was resolved to renew the quarterly communications among the brethren; and at an annual meeting, held on the 24th of June the same year, Mr. Anthony Sayer was elected grand master, invested by the oldest master-mason there present, installed by the master of the oldest lodge, and had due homage paid him by the fraternity. Before this time a sufficient number of masons met together, within a certain district, had ample power to make masons without a warrant of constitution; but it was now determined, that the privilege of assembling as masons should be vested in certain lodges or assemblies of masons convened in certain places, and that every lodge to be afterwards convened, excepting the four old lodges then existing, should be authorised to act by a warrant from the grand master for the time, granted by petition from certain individuals, with the consent and approbation of the grand lodge in communication; and that without such warrant no lodge should hereafter be deemed regular or constitutional. The former privileges, however, were still allowed to remain to the four old lodges then existing. In consequence of this, the old masons in the metropolis vested all their inherent privileges as individuals in the four old lodges, in trust that they never would suffer the ancient charges and land-marks to be infringed. The four old lodges, on their part, agreed to extend their patronage to every new lodge which should hereafter be constituted according to the new regulations of the society; and, while they acted in conformity to the ancient constitutions of the order, to admit their masters and wardens to share with them all the privileges of the grand lodge, that of precedence only excepted.

The brethren of the four old lodges now considered their attendance on the future communications of the society as unnecessary; and therefore trusted implicitly to their masters and wardens, satisfied that no measure of importance would be adopted without their approbation. It was, however, soon discovered that the new lodges, being equally represented with the old ones at the communications, would at length so

far outnumber them, that, by a majority, they might subvert the privileges of the original masons of England, which had been centered in the four old lodges; on which account a code of laws was, with the consent of the brethren at large, drawn up for the future government of the society. To this the following was annexed, binding the grand master for the time being, his successor, and the master of every lodge to be hereafter constituted, to preserve it inviolably:— 'Every annual grand lodge has an inherent power and authority to make new regulations, or to alter these for the real benefit of this ancient fraternity, provided always that the old land-marks be carefully preserved: and that such alterations and new regulations be proposed and agreed to at the third quarterly communication preceding the annual grand feast; and that they be offered also to the perusal of all the brethren before dinner, in writing, even of the youngest apprentice; the approbation and consent of the majority of all the brethren present being absolutely necessary to make the same binding and obligatory.' To commemorate this circumstance, it has been customary, ever since that time, for the master of the oldest lodge to attend every grand installation; and, taking precedence of all present, the grand master only excepted, to deliver the book of the original constitutions to the new installed grand master, on his promising obedience to the ancient charges and general regulations. By this precaution the original constitutions were established as the basis of all succeeding masonic jurisdiction in the south of England; and the ancient land-marks, as they are called, or the boundaries set up as checks against innovation, were carefully secured from the attacks of any future invaders. In 1718 Mr. Sayer was succeeded by Mr. George Payne, who collected many valuable MSS. on the subject of masonry. Another assembly and feast were held on the 24th of June, 1719, when Dr. Desaguliers was unanimously elected grand master. At this feast the old, regular, and peculiar toasts were introduced; and from this time we may date the rise of free-masonry, on its present plan, in the south of England. Many new lodges were established, the old ones visited by many masons who had long neglected the craft, and several noblemen initiated into the mysteries. In 1720, however, the fraternity are said to have sustained an irreparable loss by the burning of several valuable MSS. concerning the lodges, regulations, charges, secrets, &c. This was done by some scrupulous brethren, who were alarmed at the publication of the masonic constitutions. At a quarterly communication it was this year agreed, that, for the future, the new grand master shall be named and proposed to the grand lodge some time before the feast; and, if approved and present, he shall be saluted as grand master elect; and that every grand master, when he is installed, shall have the sole power of appointing his deputy and wardens according to ancient custom. In the mean time masonry continued to spread in the north as well as the south of England. The general assembly, or grand lodge at York, continued to meet as usual; and many persons of worth and character were initiated into

the mysteries of the fraternity. The greatest harmony subsisted between the two grand lodges, and private lodges were formed in both parts of the kingdom under their separate jurisdiction. The only distinction which the grand lodge in the north appears to have retained is in the title of the grand lodge of all England; while the other was only called the grand lodge of England. The latter, however, being encouraged by some of the principal nobility, soon acquired consequence and reputation, while the other seemed gradually to decline; but, till this period, the authority of the grand lodge at York was never challenged; on the other hand, every mason in the kingdom held that assembly in the highest veneration, and considered himself bound by the charges which originated from that assembly. But now this social intercourse was abolished, and the lodges in the north and south became estranged from each other. This is said to have been owing to the introduction of some innovations among the lodges in the south; but for the coolness which arose between the two grand lodges another reason is assigned. A few brethren at York having, on some trivial occasion, seceded from their ancient lodge, they applied to London for a warrant of constitution. Their application was honored without any enquiry into the merits of the case; and thus, instead of being recommended to the mother-lodge to be restored to favor, these brethren were encouraged to revolt, and permitted, under the sanction of the grand lodge in London, to open a new lodge in the city of York itself. This illegal extension of power offended the grand lodge at York, and occasioned a breach which has never been fully made up. We now turn to a more pleasing feature of the modern history of masonry.

The duke of Buccleugh, who in 1723 succeeded the duke of Wharton as grand master, first proposed the scheme of raising a general fund for distressed masons. This motion was supported by lord Paisley, colonel Houghton, and a few other brethren; and the grand lodge appointed a committee to consider of the most effectual means of carrying the scheme into execution. The disposal of the charity was first vested in seven brethren; but, this number being found too small, nine more were added. It was afterwards resolved that twelve masters of contributing lodges, in rotation with the grand officers, should form the committee; and, by another regulation since made, it has been determined that all past and present grand officers, with the masters of all regular lodges, which shall have contributed within twelve months to the charity, shall be members of the committee. This committee meets four times in the year by virtue of a summons from the grand master or his deputy. The petitions of the distressed brethren are considered at these meetings; and, if the petitioner be considered as a deserving object, he is immediately relieved with £5. If the circumstances of the case are of a peculiar nature, his petition is referred to the next communication, where he is relieved with any sum the committee may have specified, not exceeding twenty guineas at one time. Thus the distressed have always found ready relief from this general charity, which is

supported by the voluntary contributions of different lodges out of their private funds, without being burdensome to any member in the society and so liberal have the contributions been, that though the sums annually expended, for the relief of the distressed brethren, have for a long time past amounted to many thousand pounds there still remains a considerable sum. One of the most remarkable events, in the affairs of modern masonry, is the initiation of Omitti Omrah Bahauder, eldest son of the nabob of the Carnatic, who was received by the lodge of Trinchinopoly in the year 1779. The news being officially transmitted to England, the grand lodge determined to send a congratulatory letter to his highness on the occasion, accompanied with an apron elegantly decorated, and a copy of the book of Constitutions superbly bound. The execution of this commission was entrusted to Sir John Dwy, advocate-general of Bengal; and in the beginning of 1780 an answer was received from his highness, acknowledging the receipt of the present, and expressing the warmest attachment and benevolence to his brethren in England. The letter was written in the Persian language, and enclosed in an elegant cover of cloth of gold, addressed to the grand master and grand lodge of England. A proper reply was made; and a translation of his highness's letter was ordered to be copied on vellum; and, with the original, elegantly framed and glazed, and hung up in the hall at every public meeting of the society.

After such a copious history of the rise, progress, and present state of masonry, it may seem natural to enquire into the uses of the institution, and for what purpose it has been patronised by so many great and illustrious personages. The profound secrecy, however, in which every thing relating to masonry is endeavoured to be kept, will prevent us from being very particular on this head. Masons themselves say that it promotes philanthropy, friendship, and morality; that in proportion as masonry has been cultivated the countries have been civilised, &c. How far this can be depended upon, the fraternity best know. Another advantage, arising from its peculiarities, seems less equivocal, viz. that its signs serve as a kind of universal language, so that by means of them the most distant nations may become acquainted, and enter into friendship with each other. The late Dr. John Brown rendered the social institution of masonry subservient to the purposes of literature, by instituting a Latin lodge at Edinburgh, in 1784, entitled *The Roman Eagle*; which was carried on with great éclat for some time.

But the abbé Bârnuel has attempted in his *Memoirs of the History of Jacobinism*, translated into English by the Hon. Robert Clifford, F. R. S. and A. S., to cast all the honor of the institution into shade; and ventures to ascribe the French revolution, and the subsequent convulsions of Europe, to the principles and plans of this fraternity. He exempts indeed the English masons from his most important charges, and considers them as distinguished from those of the continent of Europe, by their charity and brotherly affection. Those of Germany, how-

ever, he says, some of 'the most detestable of the Jacobin crew,' affect a contempt for the English lodges. Yet this writer allows that for a considerable time the generality of lodges, both in France and Germany, might also have been excepted from the charge which he adduces against them. The grand objects of masonry, which he criminales, are, as he says, equality and liberty. He seems to have been enrolled a member of this society against his own inclination; and describes the manner in which he was admitted 'apprentice,' 'fellowcraft,' and 'master,' in one evening. The grand object which he proposed to himself of course was to learn the secrets of masonry: and these he does not scruple thus to reveal. 'The moment having arrived that was destined for this purpose, he was ordered to approach nearer to the 'Venerable:' then the brethren, who had been armed with swords for the occasion, drew up in two lines, holding their swords elevated; and leaning the points toward each other formed what is called the arch of steel. The candidate passed under this arch to a sort of altar elevated on two steps, at the farthest end of the lodge. The master seated in an arm chair, or a sort of throne, behind this altar, now pronounced a long discourse on the inviolability of the secret which was to be imparted, and on the danger of breaking the oath which the candidate was about to take. He pointed to the naked swords, always ready he said to pierce the breast of the traitor, and declared to him that it was impossible to escape their vengeance. The candidate then swore that, rather than betray the secret, he consented to have his head cut off, his heart and entrails torn out, and his ashes cast before the winds. Having taken the oath, the master said the following words, which the reader he says may easily conceive have not escaped my memory, as I had expected them with so much impatience, 'My dear brother, the secret of masonry consists in these words, equality and liberty; all men are equal and free; all men are brethren.' The master did not utter another syllable; and every body embraced the new brother equal and free. The lodge broke up, and we gaily adjourned to a masonic repast.

Our author under the name of occult lodges, or the higher degrees of masonry, comprehends all free masons, who, after having passed the first three degrees of apprentice, fellowcraft, and master, are sufficiently zealous to be admitted into the higher degrees, where, as he says, the veil is rent asunder, where emblematical and allegorical figures are thrown aside, and where the twofold principle of equality and liberty is unequivocally explained 'by war against Christ and his altars, war against kings and their thrones:' an assertion which we confess we can believe on no such authority. He undertakes however to demonstrate, that such is the result of the mysteries of the craft.

Masonic writers in general, he says, divide free masonry into three classes, the Hermetic, the Cabalistic (comprehending the Martinists), and the Eclectic masonry: all of which agree in one point, viz. their hatred to Christianity and revelation.

The Eclectic masons are represented as the most numerous. These, after having passed through the different degrees of masonry, attach themselves to no particular system, either political or religious, but adopt from them whatever may best suit their political or religious views. They are what they please, Deists, Atheists, Sceptics, an aggregate of all the errors of the philosophism of the day; with respect to religion, they admit that equality and liberty which deny every authority but their own reason, and reject all revealed religion; and, as to governments, they admit of no kings, unless subservient to the will of the people in right of its sovereignty. Those who belonged to a sort of Eclectic masonry, established about the period of his writing in Germany, asserted that all are independent, and have a right of making their own laws. For this reason, they abolished the names of Grand Lodge and Scotch Lodge, so that they may be said to have improved upon masonic equality and liberty. Such Eclectic masons could not have been very numerous in France, as the major part of them was under the inspection of the Grand Parisian Lodge, called the 'Grand Orient.' All classes, and every code of masonry, Hermetic, Cabalistic, or Martinists, and Eclectic, concurred in forwarding the revolution, he adds, and it little imported to the sect which struck the blow, provided that ruin ensued.

M. Barruel attributes the origin of free masonry to the Knights Templars, who were either the authors of it, or borrowed it by tradition from the ancient mysteries of Paganism. According to his wonder-teeming statement, depositions of the Knights Templars declare, that on their reception into the order they denied Christ, trampled on the cross, and spit upon it; that Good Friday was a day particularly consecrated to such outrages; that they promised to prostitute themselves to each other for the most unnatural crimes; that every child begotten by a Templar was cast into the fire; that they bound themselves by oath to obey, without exception, every order from the grandmaster; to spare neither sacred nor profane things; to look upon every thing as lawful when the good of the order was in question; and, above all, never to violate the horrible secrets of their nocturnal mysteries, under pain of the most terrible chastisements. Somewhat inconsistently with this statement he now traces them farther back, i. e. to Manes and the Manichees, reflecting on the Albigenses, Waldenses, &c., of the south of France as connected with them.

He closes his account of the free masons by directing the attention of his reader to a body of men, or conspirators as he calls them, who had coalesced, under the name of 'Illuminées,' with the Encyclopédistes and masons. They silently prepared, he contends, the explosions of the revolutionary volcano, not merely swearing hatred to the altar of Christ and the throne of kings, but swearing at once hatred to every god, every law, and every government; and even to all society and social compact! They even proscribed the terms mine and thine, acknowledging neither equality nor liberty, but in the 'entire,

absolute, and universal overthrow of all property?

MASORA, a term in the Jewish theology, signifying a work on the Bible, performed by several learned rabbies, to secure it from any alterations which might otherwise happen. Their work regards merely the letter of the Hebrew text, in which they have fixed the reading by vowels and accents. Secondly, they have numbered not only the chapters and sections, but the verses, words, and letters of the text: and they find in the Pentateuch 5245 verses, and in the whole Bible 23,206. The masora is called by the Jews the hedge or fence of the law, because this enumeration of the verses, &c., is a means of preserving it from being corrupted and altered. Thirdly, they have marked whatever irregularities occur in any of the letters of the Hebrew text; such as the different size of the letters, their various positions and inversions, &c., and they have been fruitful in finding out reasons for these irregularities and mysteries in them. Fourthly, they are supposed to be the authors of the Keri and Chetiph, or the marginal corrections of the text in the Hebrew Bibles. The text of the sacred books, it is to be observed, was originally written without any breaks or divisions into chapters or verses, or even into words; so that a whole book, in the ancient manner, was but one continued word: of this kind we have still several ancient MS. books, both Greek and Latin. As, therefore, the sacred writings had undergone an infinite number of alterations, whence various readings had arisen, and the original was become much mangled and disguised, the Jews had recourse to a canon, which they judged infallible, to fix the reading of the Hebrew text; and this rule they call masora, tradition, from מסר, tradidit. For, the Hebrew consonants being generally written without the vowels, the words would often bear a different signification, according to the vowels supplied; for instance, the three letters דבר, *d b r*, have at least five different significations, viz. he spake, speaking, a word, a pestilence, and a fold for sheep or cattle. Whilst the Hebrew was a living language, there is no doubt that the word composed of these three letters was understood in its different significations by the different vowels that were used in it when they uttered it. Such vowel points the Masorites have now affixed to it, by which we may know when and where these three letters signify one thing and when and where another. When it signifies 'he spake,' they affix the points which denote *a* short and *e* long, and say דָּבַר, *daber*; when it is a participle, and signifies 'speaking,' they read by their points דּוֹבֵר, *dober*; when it is a noun, and signifies a 'word,' they put under it two *a*'s short, and read דָּבָר, *dabar*, when it signifies a pestilence they put two *e*'s under, and read דִּבֶּר, *deber*; when it signifies a fold they put the points which denote *a* and *e*, and read it דִּבְרָא; and so they have done with other words. What has been done, in this case, by the Masorites, would certainly be of great use for under-

standing the Hebrew text, if they had live while the Hebrew was a living language, and these points had been then used, and we could have been assured of their knowledge of the true pronunciation of all words, according to the different significations; but, as the Hebrew was dead language many hundred years before this time, the true ancient pronunciation was as much unknown then as now. We have St. Jerome's testimony, that different vowels were used in the pronunciation of the same word in different countries; and this was at least 100 years before the Masorites began the invention of their points either for vowel, pause, or accent; and they were improving for some centuries. It is also manifest, from the LXX., that the ancient Jew read with different vowels from those which the Masorites have affixed. Accordingly they say that, when God gave the law to Moses at Mount Sinai, he taught him, first, the true reading of it; and, secondly, its true interpretation; and that both these were handed down by oral tradition, from generation to generation, till a length they were committed to writing. The former of these, viz. the true reading, is the subject of the masora; the latter, or true interpretation that of the mishna and gemara. The Masorites have, however, occasionally altered the text to be in accordance with their ideas of the interpretation, or at least so fixed the points as to favor their reading. In Dan. ix. 25, they put their athnach or semicolon after the seven weeks and thus, cutting off the seven weeks from the three score and two weeks, make the prophecy wholly unserviceable to Christians; but if they had placed a comma after seven weeks, and then athnach or semicolon after three score and two weeks, the number of years, viz. 483 (sixty-nine weeks) would exactly point out the time when the Christian Messiah came. There is a masora printed at Venice and at Basil, with the Hebrew text in a different character. Buxtorf has written a masoretic commentary, which he calls Tiberias.

MASORITES, the compilers of the masora. Elias Levita says, they were the Jews of a famous school at Tiberias, who, about A. D. 500, composed, or at least began, the masora; whence they are called Masorites, and masoretic doctors. Aben Ezra makes them the authors of the points and accents in the Hebrew text, as we now find it; and which serve for vowels. The age of the Masorites has been much disputed. Archbishop Usher places them before Jerome; Capel at the end of the fifth century; Father Morin in the tenth century. Basnage says, that they were not a society, but a succession of men; and that the masora is the work of many grammarians, who, without associating and communicating their notions, composed this collection of criticisms on the Hebrew text. It is urged that there were Masorites from the time of Ezra and the men of the great synagogue, to about A. D. 1030; and that Ben Asher and Ben Naphthali, who, according to Basnage, were the inventors of the masora, flourished at this time. Each of these published a copy of the whole Hebrew text, as correct, says Dr. Prideaux, as they could make it. The eastern Jews followed that of Ben Naphthali, and

the western that of Ben Asher; and all that has been done since is to copy after them, without making any more corrections or masoretical criticisms. The Arabs have done the same by their Koran that the masorites have done by the Bible; nor do the Jews deny their having borrowed this expedient from the Arabs, who first put it in practice in the seventh century.

MASQUE, or MASK, a cover for the face, contrived with apertures for the eyes and mouth; originally worn chiefly by women of condition, either to preserve their complexion from the weather, or to prevent their being known. Poppea, wife of Nero, is said to have invented the masque; to guard her complexion from the sun, being uncommonly delicate with regard to her person. Theatrical masques, however, were in use both among the Greeks and Romans: Suidas and Athenæus ascribe the invention of them to the poet Choerilus, a contemporary of Thespis; Horace attributes them to Æschylus; but the real inventor, according to Aristotle, as well as the time of their first introduction and use, was unknown. Brantome observes that the use of masques was not introduced till towards the end of the sixteenth century.

MASQUE, in architecture, is applied to certain pieces of sculpture, representing some hideous forms, grotesque, or satyrs' faces, &c., used to fill up and adorn vacant places, as in friezes, the panels of doors, keys of arches, &c., but particularly in grottoes.

MASQUE DE FER, or Man with the Iron Mask, in modern French history, were a celebrated state prisoner in the reign of Louis XIV., so called on account of his wearing a black mask over his face when he appeared before strangers. He is the Junius of this period of the French history. The public attention was first attracted to the remarkable circumstances connected with his confinement by the celebrated Voltaire, nearly fifty years after the death of the prisoner. The following are the principal facts related by that writer, who, receiving the history certainly in a very imperfect state, added, it would seem, some few embellishments calculated to favor his own surmises. According to his account, a few months after the death of cardinal Mazarine, there arrived at the isle of Sainte Marguerite a young prisoner whose appearance was peculiarly attractive: his person was above the middle size, and elegantly formed; his mien and deportment were noble, and his manners graceful. On the road he constantly wore a mask made with iron springs, to enable him to eat without taking it off. It was at first believed that this masque was made entirely of iron; whence he acquired the title of the Man with the Iron Mask. His attendants had received orders to despatch him, if he attempted to take off his masque or discover himself. He had been first confined at L'ignierol under the care of the governor M. de St. Mars; and, upon being sent thence to St. Marguerite, he was accompanied by the same person. He was always treated with the utmost respect: he was served constantly in plate; and the governor himself placed his dishes on the table, retiring immediately after and locking the door behind him. He never wore his hat before him, nor ever

sat down in his presence without being desired. The marquis Louvois, who went to see him at St. Marguerite, spoke to him standing, and with that kind of attention which denotes high respect. During his residence here, he attempted twice, in an indirect manner, to make himself known. One day he wrote something with his knife on a silver plate, and threw it out of his window towards a boat that was drawn on shore near the foot of the tower. A fisherman picked it up and carried it to the governor. M. de St. Mars asked the man, with great anxiety, whether he could read, and whether any one else had seen the plate? the man answered, that he could not read, that he had but just found the plate, and that no one else had seen it. He was, however, confined till the governor was well assured of the truth of his assertions. Another attempt to discover himself proved equally unsuccessful. A young man who lived in the isle one day perceived something floating under the prisoner's window; and, on picking it up, he discovered it to be a very fine shirt written all over. He carried it immediately to the governor; who, having looked at some parts of the writing, asked the lad, with some appearance of anxiety, if he had not had the curiosity to read it? He protested repeatedly that he had not; but two days afterwards he was found dead in his bed.

The Masque de Fer remained in this isle till 1698, when M. St. Mars, being promoted to the government of the Bastille, conducted his prisoner to that fortress. In his way thither he stopt with him at his estate near Palteau. The masque arrived there in a litter, surrounded by a numerous guard on horseback. M. de St. Mars eat at the same table with him all the time they resided at Palteau; but the latter was always placed with his back towards the windows; and the peasants, who came to pay their compliments to their master, and whom curiosity kept constantly on the watch, observed that M. de St. Mars always sat opposite to him with two pistols by the side of his plate. They were waited on by one servant only, who brought in and carried out the dishes, always carefully shutting the door both in going out and returning. The prisoner was always masked, even when he passed through the court; but the people saw his teeth and lips, and observed that his hair was gray. The governor slept in the same room with him, in a second bed that was placed in it on that occasion. In the course of their journey, the masque, continues this author, was one day heard to ask his keeper, whether the king had any design on his life: 'No, prince,' he replied, 'provided that you quietly allow yourself to be conducted, your life is perfectly secure.' The stranger was accommodated as well as it was possible to be in the Bastille. An apartment had been prepared for him by order of the governor before his arrival, fitted up in the most convenient style; and every thing he expressed a desire for was instantly procured him. His table was the best that could be provided; and he was supplied with as rich clothes as he desired; but his chief taste in this last particular was for lace, and for linen remarkably fine. He was allowed the use of such books as

he desired, and he spent much of his time in reading. He also amused himself with playing upon the guitar. He had the liberty of going to mass; but was then strictly forbidden to speak or uncover his face: orders were even given to the soldiers to fire upon him, if he attempted either; and their pieces were always pointed towards him as he passed through the court. When he had occasion to see a surgeon, or a physician, he was obliged, under pain of death, constantly to wear his mask. An old physician of the Bastille, who had often attended him when he was indisposed, said, that he never saw his face, though he had frequently examined his tongue, and different parts of his body; and that he never complained of his confinement, nor let fall any hint by which it might be guessed who he was. He often passed the night in walking up and down his room. This unfortunate person died on the 19th of November, 1703, after a short illness; and was interred next day in the burying-place of the parish of St. Paul. The expense of his funeral amounted only to forty livres. The name given him was Marchiali; and even his age, as well as his real name, it seemed of importance to conceal; for, in the register made of his funeral, it was mentioned that he was about forty years old, though he had told his apothecary, some time before his death, that he thought he must be sixty. Immediately after his death, his apparel, linen, clothes, mattresses, and in short every thing that had been used by him, were burnt; the walls of his room were scraped, the floor taken up, evidently from the apprehension that he might have found means of writing any thing that would have discovered who he was. Nay, such was the fear of his having left a letter, or any mark which might lead to a discovery, that his plate was melted down; the glass was taken out of the window of his room and pounded to dust; the window frame and doors burnt; and the ceiling of the room, and the plaster of the inside of the chimney, taken down. Several persons have affirmed, that the body was buried without a head; and M. de St. Foix informs us, in his *Essais Historiques*, that 'a gentleman having bribed the sexton had the body taken up in the night, and found a stone instead of the head.' See BASTILLE.

Among the numerous conjectures concerning the real name and condition of this remarkable personage, the masked prisoner was from time to time asserted to have been an Armenian patriarch, forcibly carried from Constantinople by the contrivance of the Jesuits; Louis count de Vermandois, natural son to Louis XIV.; the celebrated duke of Beaufort; and even James duke of Monmouth: although the Armenian patriarch was enrolled in the records of the Bastille by the name of Avedik, his face was unknown, and therefore required no concealment; and although he had died ten years before the mask,—although de Vermandois was believed by his father and the whole army to have perished in the camp before Dixmude, and was accordingly buried near Arras in 1693,—although, according to the belief of the Turks, Beaufort was killed, and his head taken off before Candia; and although James of Monmouth, in the imagination of the

Londoners at least, was executed on Tower Hill. Yet as no living princes were at that time missing, the silence of the grave must be disturbed, and the evidence of men's senses attacked as insufficient, in order to raise a personage of sufficient importance. Some, however, conceiving that to create a new prince was at least as easy as to raise a dead one, asserted that he was a son of Anne of Austria, queen to Louis XIII., and consequently that he was a brother of Louis XIV. The queen, it was stated, proved with child at a time when it was evident it could not have been by her husband, who, for some months before, had never been with her in private. The supposed father of this child is said to have been the duke of Buckingham, who came to France in May, 1625, to conduct the princess Henrietta, wife of Charles I., to England. Another opinion is, that he was the twin-brother of Louis XIV., born some hours after him. This first appeared in a short anonymous work published without date, or name of place or printer. It is therein said, 'Louis XIV. was born at St. Germain en Laye on the 5th of September, 1638, about noon; and the illustrious prisoner, known by the appellation of the iron masque, was born the same day, while Louis XIII. was at supper. The king and the cardinal, fearing that the pretensions of a twin-brother might one day be employed to renew those civil wars with which France had been so often afflicted, cautiously concealed his birth, and sent him away to be brought up privately.' This opinion was confirmed in a work called *Memoires de Marechal Duc de Richelieu*, written by the abbé Soulavie; in which it is distinctly asserted that, 'the birth of the prisoner happened in the evening of the 5th of September, 1638, in presence of the chancellor, the bishop of Meaux, the author of the MS., a midwife named Peronéte, and a sieur Honorat. This circumstance greatly disturbed the king's mind; he observed that the Salique law had made no provision for such a case. By the advice of cardinal Richelieu it was therefore resolved to conceal his birth, but to preserve his life, in case, by the death of his brother, it should be necessary to avow him. A declaration was drawn up, and signed and sworn to by all present, in which every circumstance was mentioned, and several marks on his body described. This document, being sealed by the chancellor with the royal seal, was delivered to the king; and all took an oath never to speak on the subject, not even in private and among themselves. The child was delivered to the care of madame Peronéte, to be under the direction of cardinal Richelieu, at whose death the charge devolved to cardinal Mazarin. Mazarin appointed the author of the MS. his governor, and entrusted to him the care of his education. But as the prisoner was extremely attached to madame Peronéte, and she equally so to him, she remained with him till her death. His governor carried him to his house in Burgundy, where he paid the greatest attention to his education. As the prisoner grew up he became impatient to discover his birth, and often importuned his governor on that subject. His curiosity had been roused, by observing that messengers from the court frequently

arrived at the house ; and a box, containing letters from the queen and the cardinal, having one day been inadvertently left out, he opened it, and saw enough to guess at the secret. From that time he became thoughtful and melancholy, 'which,' says the author, 'I could not then account for. He shortly after asked me to get him a portrait of the late and present king ; but, I put him off, by saying that I could not procure any that were good. He then desired me to let him go to Dijon ; which I have known since was with an intention of seeing a portrait of the king there, and of going secretly to St. John de Lus, where the court then was, on occasion of the marriage with the infanta. He was beautiful ; and love helped him to accomplish his wishes. He had captivated the affections of a young housekeeper, who procured him a portrait of the king. It might have served for either of the brothers ; and the discovery put him into so violent a passion, that he immediately came to me, with the portrait in his hand, saying, Voila mon frere, et voila qui je suis, showing me at the same time a letter of the cardinal de Mazarin that he had taken out of the box.' Upon this discovery his governor immediately sent an express to court, to communicate what had happened, and to desire new instructions. On this, both the prince and governor were arrested, he informs us, and continues the rest of his narrative in a manner similar to that of Voltaire.

The whole of this wonderful tale is now exploded, and the masked prince, the brother of a king, is converted into an Italian politician, a crafty agent of the duke of Mantua, who, having out-manœuvred Louis, the revengeful monarch thus imprisoned him for life.

The abbé D'Estrades, French ambassador to the states of Venice, had formed the hope of acquiring for his master the town and fortress of Casal in the territories of the duke of Mantua, and selected as his agent with Ferdinand, Ercole Antonio Matthioli, bachelor of laws, at Bologna, and a senator of Mantua. He had been secretary of state to the former duke, and retained the confidence of the present, who sent him, after various negotiations, to Paris, in order to conclude the treaty for the delivery of the fortress. All was arranged ; French forces were prepared on the frontier, under the command of M. Catinat, to take possession of the place, and D'Asfeld repaired to Venice to see Ferdinand. D'Asfeld was arrested ; Matthioli wrote to Pinchesne, the deputy of D'Estrades, informing him that the duke had entered into a treaty with Spain and Austria ; and a communication from the duchess-dowager of Savoy at length brought the mortifying certainty that the Grand Monarque had been completely duped by the obscure agent of a petty Italian prince.

This so mortified the pride of Louis that he resolved to ruin Matthioli, and accordingly entrapped and committed him to custody. St. Mars was his keeper, and the precautions taken to prevent its being known that the humbled pride of Louis could take such revenge, though probably much exaggerated, were doubtless severe and remarkable. He travelled in a canvas chair so that not even his guards could see his

face, and St. Mars amused the inquisitive with 'des contes jaunes,' to throw them, as a huntsman would say, from the right scent. In these we doubtless may discover the origin of many of the miraculous incidents related by Voltaire.

The true origin, for instance, of the narrative of the silver plate, said to be thrown from his window by Marchiali (the name given in the Bastille to the masque), may be discovered in the following incident which occurred at St. Marguerite while he was there. 'A Protestant minister, confined here at the same time, amused himself, says St. Mars, 'with scribbling sorry stuff ('des pauvretés') on his linen and pewter, which, being transformed into silver by the gossips, added considerably to the marvel of the tale.'

Those who wish to consult the evidence on which this account of the masque rests, and which consists of state papers, letters from St. Mars and Louvois, the war minister, which, though quite conclusive, are much too long for our insertion, may refer to the *Histoire de l'Homme au Masque de Fer*, by M. Delors, Paris, 1825 ; or, still better, to the *History of the Iron Mask*, by the Honorable George Agar Ellis, London, 1826.

MASQUERADE, *n. s. & v. a.*) See MASK.

MASQUERA DER, *n. s.*)

{ An entertainment at which the company are masked : to go in masks or disguise : a masquerader is a person thus disguised.

I was upon the frolick this evening, and came to visit thee in a *masquerade*. *Dryden's Spanish Friar.*

A freak took an ass in the head, and he goes into the woods, *masquerading* up and down in a lion's skin. *L'Estrange.*

The most dangerous sort of cheats are but *masqueraders* under the vizard of friends. *Id.*

It is a kind of acting to go in *masquerade*, and a man should be able to say or do things proper for the dress in which he appears. The misfortune of the thing is, that people dress themselves in what they have a mind to be, and not what they are fit for. *Steele.*

Truth, of all things the plainest and sincerest, is forced to gain admittance in disguise, and court us in *masquerade*. *Felton.*

I find that our art hath not gained much by the happy revival of *masquerading* among us. *Swift.*

What guards the purity of melting maids, In courtly balls and midnight *masquerades*, Safe from the treacherous friend, and daring spark, The glance by day, the whisper in the dark ? *Pope.*

At operas an' plays parading,

Mortgaging, gambling, *masquerading*. *Burns.*

MASRAKITHA, an instrument of music among the ancient Hebrews, composed of pipes of various sizes, fitted into a kind of wooden chest, open at the top, and stopped at the bottom with wood covered with a skin. Wind was conveyed to it from the lips, by means of a pipe fixed to the chest : the pipes were of lengths musically proportioned to each other, and the melody was varied at pleasure, by stopping and unstopping with the fingers the apertures at the upper extremity.

MASS, *n. s. & v. a.* Lat. *missa*, à mitto. A service of the Romish church. See below : to perform mass.

Their *massing* furniture they took from the law, lest, having an altar and a priest, they should want vestments.

Burnished gold is that manner of gilding which we see in old parchment and *mass* books, done by monks and priests; who were very expert therein.

Peacham on Drawing.

Malicious *mass-priest*, cast back those envious eyes, to your own infamous chair of Rome; and, if even in that thou canst discern no spectacles of abominable uncleanness, spend thy spiteful censures upon ours.

Bp. Hall.

Cardinal Albornolius, by his last will, took order for fifty thousand *masses* to be said for his soul.

Jer. Taylor.

He infers, that then Luther must have been unpardonably wicked in using *masses* for fifteen years.

Atterbury.

MASS, *n. s. & v. a.*

MASSIVE, *adj.*

MAS'Y,

MAS'SINESS, *n. s.*

MAS'SIVENESS.

Fr. *masse, massif*; Lat.

massa. A body; lump;

bulk; quantity; considerable quantity; congeries;

gross body: to accumulate

in masses; strengthen or thicken (obsolete):

massive and massy mean bulky; heavy; ponderous; solid: massiness and massiveness correspond.

Thy sumptuous buildings, and thy wife's attire, Have cost a *mass* of publick treasury.

Shakspeare.

This army of such mass and charge,

Led by a delicate and tender prince.

Id. Hamlet.

If you would hurt,

Your swords are now too *massy* for your strength,

And will not be uplifted.

Id. Tempest.

He discovered to me the richest mines which the Spaniards have, and from whence all the *mass* of gold that comes into Spain is drawn.

Raleigh.

Comets have power over the gross and *mass* of things; but they are rather gazed upon than wisely observed in their effects.

Baron.

He had spent a huge *mass* of treasure in transporting his army.

Davies on Ireland.

They feared the French might, with filling or *massing* the house, or else by fortifying, make such a piece as might annoy the haven.

Hayward.

Let ignorance with envy chat,

In spite of both, thou fame shalt win;

Whose *mass* of learning seems like that

Which Joseph gave to Benjamin.

Herrick to Ben Jonson.

The Creator of the world would not have framed so huge a *mass* of earth but for some reasonable creatures to have their habitation.

Abbot.

It was more notorious for the daintiness of the provision served in it, than for the *massiness* of the dish.

Hale-will.

No sideboards then with gilded plate were pressed,

No sweating slaves with *massive* dishes dressed.

Dryden.

The whole knowledge of groupes, of the lights and shadows, and of those *masses* which Titian calls a bunch of grapes, is, in the prints of Rubens, exposed clearly to the sight.

Id.

Where'er thou art, he is; the eternal mind

Acts through all places; is to none confined:

Fills ocean, earth, and air, and all above,

And through the universal *mass* does move.

Id.

Where flowers grow, the ground at a distance seems covered with them, and we must walk into it before we can distinguish the several weeds that spring up in such a beautiful *mass* of colours.

Addison.

Perhaps these few stones and slings, used with invocation of the Lord of Hosts, may countervail the *massive* armour of the uncircumcised Philistine.

Government of the Tongue.

At distance, through an artful glass,

To the mind's eye things well appear;

They lose their forms and make a *mass*

Confused and black, if brought too near.

Prior.

The intrepid Theban hears the bursting sky,

Sees yawning rocks in *massy* fragments fly,

And views astonished, from the hills afar,

The floods descending, and the watery war.

Pope.

If these liquors or glasses were so thick and *massy* that no light could get through them, I question not but that they would, like all other opaque bodies, appear of one and the same colour in all positions of the eye.

Newton's Opticks.

The more gross and *massive* parts of the terrestrial globe, the strata of stone, owe their order to the deluge.

Woodward.

Some passing into their pores; others adhering in lumps or *masses* to their outsides, so as wholly to cover and involve it in the *mass* they together constituted.

Id.

If there is not sufficient quantity of blood, and strength of circulation, it may infect the whole *mass* of the fluids.

Arbuthnot.

The *mass* of the people have opened their eyes and will not be governed by Clodius and Curio.

Swift.

MASS, in mechanics, is the matter of any body cohering with it, i.e. moving and gravitating along with it; in which sense mass is distinguished from bulk or volume, which is the expansion of a body in length, breadth, and thickness. The mass of any body is rightly estimated by its weight; and the masses of two bodies of the same weight are in a reciprocal ratio of their bulks.

MASS, in the Roman Catholic church, the prayers used at the celebration of the eucharist, in consecrating the bread and wine into the body and blood of Christ, and offering them, so transubstantiated, as an expiatory sacrifice for the quick and the dead. By the Roman Catholics it is in general believed to be a representation of the passion of our blessed Saviour; so every action of the priest, and every particular part of the service, is supposed to allude to the particular circumstances of his passion and death. Nicod, after Baronius, observes that the word missa comes from the Hebrew missach, oblatum; or from the Latin missa, missorum; because formerly the catechumens and excommunicated were sent out of the church, when the deacons said, Ite, missa est, after sermon and reading of the epistle and gospel; they not being allowed to assist at the consecration. Menage derives the word from missio, dismissing; others from missa, sent; because, in the mass, the prayers of men on earth are sent up to heaven. The general division of masses consists in high and low. The former are sung by the choristers, and celebrated with the assistance of a deacon and sub-deacon; the latter are those in which the prayers are barely rehearsed without singing. There is a great number of different occasional masses in the Romish church, many of which have nothing peculiar but the name; such are the masses of the saints; that of St. Mary of the

snow, celebrated August 5th; that of St. Margaret, patroness of lying-in women; that of the feast of St. John the Baptist, at which are said three masses; that of the Innocents, at which the Gloria in excelsis and the Hallelujah are omitted, and, it being a day of mourning, the altar is of a velvet color. As to ordinary masses, some are said for the dead, and are supposed to contribute to fetch the soul out of purgatory: at these masses the altar is put in mourning, and the only decorations are a cross in the middle of six yellow wax lights; the dress of the celebrant, and the very mass book, are black; many parts of the office are omitted, and the people are dismissed without the benediction. If the mass be said for a person distinguished by his rank or virtues, it is followed with a funeral oration; they erect a chapel ardente, that is, a representation of the deceased, with branches and tapers of yellow wax, either in the middle of the church or near the deceased's tomb, where the priest pronounces a solemn absolution of the deceased. There are likewise private masses said for stolen or strayed goods or cattle, for health, for travellers, &c., which go under the name of votive masses. There is still a further distinction of masses denominated from the countries in which they were used; thus the Gothic Mass, or missa Mosarabum, used among the Goths when they were masters of Spain, which is still kept up at Toledo and Salamanca; the Ambrosian mass, composed by St. Ambrose, and used only at Milan, of which city he was bishop; the Gallic mass, used by the ancient Gauls; and the Roman mass, used by almost all the churches in the Romish communion.

MASS OF THE PREBENEFICATED (missa prebeneficatorum), is a mass peculiar to the Greek church, in which there is no consecration of the elements; but, after singing some hymns, they receive the bread and wine which was before consecrated. This mass is performed all Lent, except on Saturdays, Sundays, and the annunciation. The priest counts upon his fingers the days of the ensuing week on which it is to be celebrated, and cuts off as many pieces of bread at the altar as he is to say masses; and, after having consecrated them, steepes them in wine, and then puts them in a box; out of which, upon every occasion, he takes some of it with a spoon, and putting it on a dish sets it upon the altar.

MASSA, a town and duchy of Italy, situated on the Frigido, about two miles from the Mediterranean. The town stands on the great coast road leading through Tuscany from north to south, and is well built, many of the public edifices and even private houses being constructed of Carrara marble. The cathedral contains some fine pictures; and the palace, with its gardens, is worth the traveller's notice. The chief public institution is an academy of sculpture and architecture. Olives flourish in the environs. Population 10,000: thirty miles north by west of Leghorn, and fifty south by west of Modena.

MASSACHUSETTS, forming, with the district of Maine, one of the United States of North America, is bounded north by Vermont and New Hampshire, east by the Atlantic,

Rhode Island, and Connecticut, and west by New York. It is 190 miles long, and ninety broad, containing 7500 square miles. Population, in 1790, 388,727; in 1800, 422,845; and in 1810, 472,040: of whom 6737 were blacks. There are, to its great credit, no slaves in this state. The number of militia (including Maine), in 1817, amounted to 70,836.

The counties, number of towns, population in 1810, and chief towns, are exhibited in the following table:—

Counties.	Tws.	Pop.	Chief Towns.
Barnstable	14	22,211	Barnstable
Berkshire	32	35,907	Lenox
Bristol	16	37,168	Taunton
Duke's	3	3,290	Edgartown
Essex	23	71,888	Salem Newburyport Ipswich
Franklin	24	27,301	Greenfield
Hampden	18	24,421	Springfield
Hampshire	22	24,553	Northampton
Middlesex	44	52,789	Cambridge Concord
Nantucket	1	6,807	Nantucket
Norfolk	22	31,245	Dedham
Plymouth	18	35,169	Plymouth
Suffolk	2	34,381	Boston
Worcester	51	64,910	Worcester
	290	472,040	

Boston is the chief town. The other most considerable maritime towns are Salem, Newburyport, Marblehead, Beverly, Gloucester, Charlestown, Plymouth, and New Bedford. Worcester, Northampton, Springfield, Greenfield, Pittsfield, Haverhill, Dedham, Taunton, Concord, and many others, are pleasant and flourishing inland towns.

There are twenty-eight banks in Massachusetts Proper: seven at Boston, three at Salem, two at Newburyport, two at Nantucket, &c.

There is a university at Cambridge, a college at Williamstown, a theological seminary at Andover, and academies are established at Amesbury, Amherst, Andover, Bradford, Bridgewater, Byfield, Deerfield, Framingham, Groton, Hadley, Hingham, Leicester, Lenox, Marblehead, Milton, Munsen, Newburyport, Pittsfield, New Salem, Sandwich, Taunton, Westfield, Westford, and Wrentham. A number of these are well endowed, and many of them are in a flourishing state. Besides the academies, grammar schools, public and private, are constantly supported in most of the principal towns, and good schools are common throughout the state. Literary institutions are liberally patronised, and in no part of the world is information more generally diffused. The number of congregations of the several denominations of Christians in this state is as follows: Congregationalists 365, Baptists ninety-one, Friends thirty-two, Episcopalians seventeen, Universalists nine, Presbyterians five. There are also some Methodists, and a few Roman Catholics, and Shakers.

The legislature is composed of a senate of forty members, and a house of representatives. The governor, lieutenant-governor, and senators, are chosen annually on the 1st Monday in April by the people. The representatives are chosen annually in May. Each town having 150 ratable polls sends one, and another for every additional 225 polls. The legislature assemble on the last Wednesday in May, annually, and meet also in January.

The principal rivers are the Connecticut, Merrimack, Concord, Nashua, Charles, Mystic, Neponset, Taunton, Chickapee, Deerfield, Westfield, Miller's, and Housatonic. The principal canal is Middlesex Canal, connecting Boston harbour with the Merrimack, commencing in the town of Chelmsford; twenty-eight miles in length. It was completed in 1804, and was at that time the greatest work of the kind in the United States. There are canals in this state on the Connecticut, at Montague, and at South Hadley, and on the Merrimack at Patucket Falls. The principal islands are Nantucket and Martha's Vineyard. The most noted capes are Cape Ann, Cape Cod, and Cape Malabar. The most considerable bays are Massachusetts, Cape Cod, Barnstable, Plymouth, and Buzzard's bays. There are no large lakes, but there are numerous ponds.

The range of the Green Mountains passes from north to south, through the western part of this state. The principal chain takes the name of Hoosac Mountain. The highest summits are Saddle and Takonnack mountains. The former of these is the highest land in the state, and rises to the height of 4000 feet above the level of the sea. The other most noted mountains in the state are, Wachusett, in Princeton; Mount Tom and Mount Holyoke, near Northampton; and Mount Toby, in Sunderland. The general aspect of the country is interesting, affording many highly varied and extensive prospects. There are not, however, any natural objects of curiosity that vie with those of some of the other states.

The face of the country is greatly diversified. The south-eastern part is mostly level. There are also level districts of small extent in the vicinity of the Merrimack in the north-east. Salt marshes are numerous in the maritime parts, though not very extensive. Most of that part bordering on the sea-coast, and extending into the interior as far as the county of Worcester, may be regarded as the level division, exhibiting no very considerable elevations. The five western counties of Worcester, Hampshire, Franklin, Hampden, and Berkshire, present the greatest irregularity of surface, and constitute the highlands of the state. These counties, however, abound in vast tracts of elevated lands, diversified with gentle swells, in large districts of pine plains, in valleys of various extent, as well as in wide intervals, particularly on Connecticut River. The soil is exceedingly various, comprising every description from the most fertile to the most unproductive. In the south-eastern part it is mostly light and sandy, interspersed, however, with numerous fertile tracts. In the middle and northern part, toward the sea coast, it is of a much better quality, though not generally distinguished

for its natural fertility; but, by excellent cultivation, a great portion of it is rendered highly productive. The middle and western parts have generally a strong rich soil, excellent for grazing and suited to most of the purposes of agriculture. The state is almost universally well watered. The streams of every description are remarkably clear and beautiful. The farms generally consist of from 100 to 300 acres, and are for the most part well cultivated. In no part of the United States have there been greater advances made in agricultural improvements than in Massachusetts. The country is intersected in every direction by roads, which are kept in a good state of repair.

The principal productions are Indian corn, rice, wheat, oats, barley, peas, beans, buckwheat, potatoes, hops, flax, and hemp. Beef, pork, butter, and cheese, are abundant in most parts of the state, and of excellent quality. The county of Berkshire, in particular, is distinguished for its extensive dairies. The state abounds with orchards, and great quantities of cider are annually made, which is the common beverage of the inhabitants. The principal cultivated fruits are apples, peaches, pears, quinces, plums, cherries, and currants. Gardening is an object of attention throughout the state, and all the hortulan vegetables suited to the climate, together with a variety of domestic fruits, are, in this way, extensively cultivated.

Massachusetts is the most commercial state in the union, and, including the district of Maine, owns about one-third of the shipping that belongs to the United States. The greatest part of the fisheries in the United States belongs to this state. The principal articles of export are fish, beef, lumber, pork, ardent spirits, flax seed, whale oil, spermaceti, and various manufactures. The total amount, including those of Maine, in 1816, was 10,136,439 dollars. This state also holds a high rank in point of manufactures. The most considerable are those of cotton cloths, boots and shoes, ardent spirits, leather, cordage, wrought and cast iron, nails, woollens, ships, straw bonnets, hats, cabinet work, paper, oil, and muskets. There is an extensive national establishment for the manufacture of arms at Springfield. The total amount of the manufactures of Massachusetts, in 1810, was 18,594,323 dollars; and, including Maine, 20,730,104.

The principal mines are those of iron, which are found in various parts, and there are numerous establishments for manufacturing iron. The counties of Plymouth and Bristol afford great quantities of this mineral, and there are several rich iron mines in the county of Berkshire. A lead mine is found at South Hadley, and at some other places. Ochres and other fossil productions have been found in various places. Quarries of good marble are found in Lanesborough, Stockbridge, Pittsfield, Sheffield, and several other places in Berkshire county. There are quarries of slate at Lancaster, Harvard, and Bernardston, and of soap-stone at Middlefield. Lime-stone is found in great abundance in the county of Berkshire, and freestone in all parts of the state. Great quantities of beautiful stone for building are obtained from Chelmsford and Tyngsborough.

The climate of Massachusetts is subject to the extremes of heat and cold. The air, however, is generally dry, serene, and healthy. The thermometer, in summer, is frequently observed to exceed 77° for forty or fifty days together; and sometimes rises to 100°. The weather in winter is variable, sometimes very cold.

MASSACHUSETTS BAY is a large bay of North America, between Cape Ann on the north, and Cape Cod on the south.

MAS'SACRE, *n. s. & v. a.* Fr. *massacre*; of Lat. *mactus* and *sacrare*; Ital. *mazzare*. Slaughter; butchery: to butcher; slaughter indiscriminately.

The tyrannous and bloody act is done;

The most arch deed of piteous *massacre*.

That ever yet this land was guilty of. *Shakespeare.*

I'll find a day to *massacre* them all,

And raze their faction and their family. *Id.*

Christian religion, now crumbled into fractions, may, like dust, be irrecoverably dissipated, if God do not countertermine us, or we recover so much sobriety as to forbear to *massacre* what we pretend to love.

Decay of Piety.

Of whom such *massacre*

Make they, but of their brethren, men of men?

Milton.

Slaughter grows murder, when it goes too far,
And makes a *massacre* what was a war.

Dryden.

After the miserable slaughter of the Jews, at the destruction of Jerusalem, they were scattered into all corners, oppressed and detested, and sometimes *massacred* and extirpated.

Atterbury.

MASSANIELLO, or ANELLO (Thomas), a fisherman of Naples, was born in 1623, when that kingdom was subject to Austria, and governed by a viceroy. In 1646 a new and oppressive tax being imposed upon all kinds of fruit it occasioned general discontent; and Massaniello, then in his twenty-fourth year, observing the murmurings that prevailed, began to entertain the idea of redressing his country's grievances. Having imparted his design to the banditto Perone, and his companions, they laughed at him; but shortly after, the fish of Massaniello being seized for the tax, he went among the fruiterers, and advised them not to make any more purchases of the country dealers till the impost should be removed. He collected in the mean time a number of boys, to each of whom he gave a small cane, and taught them certain cries. The shopkeepers, agreeably to his instructions, refused to trade with the country people, and, a riot ensuing, the regent sent an officer named Anacleo to suppress it. The multitude, however, drove him from the spot of their meeting; and, being now gathered in great numbers, Massaniello, by his harangues, induced them to burn the toll-houses, and march to the palace of the viceroy, which they entered and rifled; the governor himself and the prince Bisignano escaping with difficulty. Thus left to themselves, the multitude chose Massaniello and Perone for their leaders. A stage was erected in the market-place, where the former sat to give audience, and minister justice, which, it is said, he did with equal gravity and impartiality. 150,000 men at this time obeyed his orders, and an incredible number of armed women. The viceroy now applied to the archbishop, whose

mild persuasions had nearly succeeded in restoring order, when, an attempt being made to assassinate Massaniello, the rage of the people burst forth with redoubled fury. The archbishop, however, had the address to prevail upon Massaniello to renew the treaty, and to visit the palace, which he did with great pomp on horseback, dressed in cloth of silver, a plume of feathers in his hat, and a drawn sword in his hand, attended by 50,000 armed followers. The terms were ratified at the cathedral on the Sunday following, and every thing had an auspicious appearance; when unfortunately Massaniello wavered: ambition induced him to violate his engagement, and his conduct all at once became capricious and tyrannical; so that four persons undertook to despatch him. The last words which he uttered were 'Ungrateful traitors!' His body was thrown into one ditch, and his head into another.

MASSENA (Andrew), prince of Essling, duke of Rivoli, and marshal of France, was born at Nice in 1758. When young he made two voyages with a relation, the captain of a merchant ship: but, preferring the army, enlisted as a common soldier, in 1775, in the royal Italian regiment. Having only attained to the rank of adjutant, after fourteen years' service, he returned to his own country and to a private life. But, the revolution again exciting him to action, he was nominated an adjutant-major, and in August 1792 made chief of a battalion. He now became successively general of a brigade, and of a division in the army of Italy, and contributed much to the success of the campaigns of 1796 and 1797. His bold and determined courage procured him the appellation of 'the favorite child of victory.' In 1799 he had the chief command in Switzerland, where he completely routed the Austro-Russian army under the archduke Charles and general Korsakow. He was less fortunate in Italy in 1800, when he was beaten at Voltri by the Austrians, under Melas, and afterwards besieged and obliged to capitulate in Genoa. In 1805 he again partly beat the archduke Charles in Italy, on the 18th of October, near Verona. He then commanded the army which took possession of Naples; and once more distinguished himself in the campaign in Poland in 1806. He was employed in Germany in 1809; and on the 3rd of May defeated the Austrians under the archduke John, at the battle of Ebersberg; shortly after he signalled himself in the engagements of Essling and Wagram, in which his services were so conspicuous, that he was decorated by Buonaparte with the title of the prince of Essling. He was afterwards opposed to lord Wellington, in the peninsula, in 1810 and 1811, when he maintained his former reputation, but was prevented gaining any new laurels. This campaign terminated his military career; but he survived the restoration of the Bourbons, dying at his seat at Ruel, near Paris, April 4th, 1817.

MASSIEU (William), a learned French writer, member of the academy of belles lettres, and of the French academy, was born at Caen in Normandy, in 1665, and completed his studies in Paris, where he entered among the Jesuits; but

afterwards left them, that he might follow his literary engagements with the greater freedom. In 1710 he was made Greek professor in the Royal College; and enjoyed that post till he died in Paris in 1722. He wrote, 1. *Several Curious Dissertations in the Memoirs of the Academy of Inscriptions.* 2. *A History of the French Poetry*, in 12mo., &c.

MASSILIA, in ancient geography, a town of Gallia Narbonensis, founded by a colony of Phoceans, from Phoecea, in Ionia, and in confederacy with the Romans; celebrated not only for its commerce and strength, but for its learning and civilisation; now Marseilles.

MASSILLON (John Baptist), the son of a notary at Hieres in Provence, born in 1663, and entered into the congregation of the oratory in 1681. His first attempts at public speaking were made at Vienne, while he was professor of theology. His funeral oration on Henry de Villars, archbishop of that city, received universal approbation. This success induced F. de la Tour, then general of the congregation, to call him to Paris. Upon preaching his first advent sermon at Versailles, he received this eulogium from Louis XIV., 'Father, when I hear others preach, I am very well pleased with them; but, whenever I hear you, I am dissatisfied with myself.' In 1717 the regent appointed him bishop of Clermont. In 1718, being appointed to preach before Louis XV., then only nine years of age, he composed in six weeks the discourses well known by the name of *Petit Carême*, which are the chef d'œuvre of this orator, and indeed of the oratorical art. He was admitted into the French academy in 1719. The abbacy of Savigny becoming vacant, the cardinal du Bois procured it for him. The funeral oration of the duchess of Orleans, in 1723, was the last discourse he pronounced in Paris. He never afterwards left his diocese, where his gentleness, politeness, and humanity, gained him the affection of all who knew him. He reduced the exorbitant rights of the episcopal roll. He died on the 28th of September, 1742, aged seventy-nine. No public speaker ever knew better how to touch the passions. His eloquence was pathetic, and equally suited to please the man of genius and the multitude, the philosopher and the courtier. He could at once think, describe, and feel. An excellent edition of Massillon's works were published by his nephew in Paris in 1745 and 1746, in 14 vols. large 12mo., and 12 vols. of a small size. The abbé de la Porte collected, in 1 vol. 12mo., the most striking and sublime ideas in Massillon's works. This collection appeared at Paris in 1748, 12mo., entitled *Pensées sur Diverses Sujets de Morale, de Piété, Tirées, &c.* A Selection and Translation of Massillon's Sermons, in 3 vols. 8vo., by Mr. William Dickson Edinburgh, was published at Perth in 1798.

MASSINGER (Philip), an English dramatic poet, born at Salisbury about 1581, and educated at Oxford. He went to London, where he wrote many tragedies and comedies, which were received with great applause, and were greatly admired for the purity of the style. He was a man of abilities and of great modesty, which rendered him greatly beloved by the poets of his

time, particularly by Fletcher, Middleton, Rowley, Field, and Decker. He died suddenly at his house on the Bank-side in Southwark, near the play-house; and was interred in the same grave with Fletcher.

MASSON (Anthony), an eminent French engraver, who flourished about the end of the seventeenth century, and resided chiefly at Paris. He sometimes amused himself with painting portraits from the life, which he also engraved. He worked entirely with the graver, and handled it with astonishing facility. He observed no kind of rule with respect to the turning of the strokes; but, twisted them about, without regard to the different forms he intended to express, making them entirely subservient to his own caprice. Yet the effect he has produced in this singular manner is not only far superior to what could be expected, but is often very picturesque and beautiful. He could not draw the naked parts of the human figure very correctly; but where the subject required the figures to be clothed he succeeded wonderfully. Among his most esteemed works are, The assumption of the Virgin, a large upright plate from Rubens; A holy family, a middling-sized plate, lengthwise, from N. Mignard; Christ with the pilgrims at Emmaus, a large plate, lengthwise, from Titian, commonly called the table-cloth, from the table-cloth being executed in a very singular style; The portrait of count Harcourt, a large upright plate, reckoned a masterpiece in this class of subjects; and another of William de Briscasier, secretary to the queen of France, a middling-sized upright plate, usually called the gray-headed man, the hair being very finely executed.

Masson (Papirius), a French writer, the son of a rich merchant, and born in Forez, in May 1544. After studying the belles lettres and philosophy, he came to Paris, where he was made librarian to the duke of Anjou's chancellor, in which office he continued ten years. In 1576 he was made an advocate of parliament; yet never pleaded but one cause. He was married, but had no issue. He died January 9th, 1611. He wrote four books of French annals in Latin, printed at Paris in 1577, and 1598, 4to. He is now chiefly known by his *Elogia Virorum Clarissimorum*, though he published several other works.

MASSOULAH BOAT, a boat used at Madras for conveying strangers ashore from on board a ship. It is of curious construction, and well calculated to elude the violent shocks of the surf, that breaks there with great violence. It is formed without a keel, flat-bottomed, with the sides raised high, sewed together with the fibres of the cocoa-nut tree, and caulked with the same material. These boats are remarkably light, and are managed with great dexterity by the natives; they are usually attended by two kattamarans or rafts, paddled by one man each, that, should the boat be overset by the violence of the surf, the persons in it may be preserved. The boat is driven, as the sailors say, high and dry; the passengers are landed on a fine sandy beach, and immediately enter the fort of Madras.

MAST, *n. s.* } Saxon *mært*; Teut. an
MASTFUL, *adj.* } Belg. *mast, mesten*, à Gree
MASTLESS, *adj.* } *μεσσω*, *saginare*, Minshet

The fruit of certain glandiferous plants: mastful is abundant in: mastless, wanting such fruit.

The oaks bear *mast*, the briars scarlet hips;
The bounteous housewife, nature, on each bush
Lays her full mess before you.

Shakspeare. Timon of Athens.

Trees that bear *mast*, and *nuts*, are more lasting than those that bear fruits; as oaks and beeches last longer than apples and pears.

Bacon's Natural History.

The breaking down an old frame of government, and erecting a new, seems like the cutting down an old oak and planting a young one: it is true, the grandson may enjoy the shade and the *mast*, but the planter, besides the pleasure of imagination, has no other benefit.

Temple's Miscellanies.

Wondering dolphins o'er the palace glide;
On leaves and *mast* of mighty oaks they brouze,
And their broad fins entangle in the boughs.

Dryden.

Some from seeds inclosed on earth arise,
For thus the *mastful* chesnut mates the skies. *Id.*
Her shining hair, uncombed, was loosely spread,
A crown of *mastless* oak adorned her head. *Id.*

When sheep fed like men upon acorns, a shepherd drove his flock into a little oak wood, and up he went to shake them down some *mast*.

L'Estrange's Fables.

MAST, *n. s.* } Sax. mææt; Fr. Teut. Belg.
MAST'ED, *adj.* } Dan. and Swed. *mast*; Span.
MAST'LESS. } *mastil*; of Goth. *mast* (tree);
the biggest or chief tree (Thomson). See MAST.
The upright beam or post of a vessel on which the sails, &c., are fixed; masted is furnished with a mast or masts.

Ten masts attached make not the altitude
That thou hast perpendicularly fallen

Shakspeare.

He dropped his anchors, and his oars he plyed;
Furled every sail, and, drawing down the *mast*,
His vessel moored. *Dryden's Virgil.*

* But now there came a flash of hope once more;

Day broke, and the wind lulled; the *masts* were gone,

The leak increased; shoals round her, but no shore,
The vessel swam, yet still she held her own.

Byron.

A MAST is a long round piece of timber, elevated perpendicularly upon the keel of a ship, to which are attached the yards, the sails, and the rigging. A mast, with regard to its length, is either formed of one single piece, which is called a pole-mast, or composed of several pieces joined together, each of which retains the name of mast separately. The lowest of these is accordingly named the lower-mast, the next in height is the top-mast, which is erected at the head of the former; and the highest is the top-gallant mast, which is prolonged from the upper end of the top-mast. Thus the two last are merely a continuation of the first upwards. The lower mast is fixed in the ship by the sheers: the foot, or heel of it, rests in a block of timber called the step, which is fixed upon the keelson: and the top-mast is attached to the head of it by the cap and the trestle-trees. The latter of these are two strong bars of timber, supported by two prominences, which are shoulders on the opposite sides of the mast, a little under its upper end; athwart these bars are fixed the cross trees, upon which the frame of the top is supported. Between the lower mast-head and the foremast of

the cross-trees, a square space remains vacant, the sides of which are bounded by the two trestle-trees. Perpendicularly above this is the foremost hole in the cap, in whose after-hole is solidly fixed the head of the lower-mast. The top-mast is erected by a tackle, whose effort is communicated from the head of the lower-mast to the foot of the top-mast; and the upper end of the latter is accordingly guided into and conveyed up through the holes between the trestle-trees and the cap, as above mentioned. Besides the parts already mentioned in the construction of masts, with respect to their length, the lower masts of the largest ships are composed of several pieces united into one body. As these are generally the most substantial parts of various trees, a mast, formed by this assemblage, is justly esteemed much stronger than one consisting of any single trunk, whose internal solidity may be very uncertain. The whole is secured by several strong hoops of iron, driven on the outside of the mast, where they remain at proper distances. The principal articles to be considered in equipping a ship with masts are, 1. the number; 2. their situation in the vessel; and 3. their height above the water. The masts being used to extend the sails by means of their yards, it is evident that, if their number were multiplied beyond what is necessary, the yards must be extremely short, that they may not entangle each other in working the ship, and consequently their sails will be very narrow, and receive a small portion of wind. If, on the contrary, there is not a sufficient number of masts in the vessel, the yards will be too large and heavy, so as not to be managed without difficulty.

The most advantageous position of the masts is undoubtedly that from which there results an equilibrium between the resistance of the water on the body of the ship on one part, and of the direction of their effort on the other. By every other position this equilibrium is destroyed, and the greatest effort of the masts will operate to turn the ship horizontally about its direction; a circumstance which retards her velocity. It is counterbalanced, indeed, by the helm; but the same inconvenience still continues; for the force of the wind, having the resistance of the helm to overcome, is not entirely employed to push the vessel forward. The axis of the resistance of the water should then be previously determined, to discover the place of the main-mast, in order to suspend the efforts of the water equally, and place the other masts so as that their particular direction will coincide with that of the main-mast. See SHIP-BUILDING.

The exact height of the masts, in proportion to the form and size of the ship, remains yet a problem to be determined. The more the masts are elevated above the centre of gravity, the greater will be the surface of sail which they are enabled to present to the wind; so far an additional height seems to have been advantageous. But this advantage is diminished by the circular movement of the mast, which causes the vessel to stoop to its effort; and this inclination is increased in proportion to the additional height of the mast, an inconvenience which it is necessary to guard against. To reconcile these differences

it is certain that the height of the mast ought to be determined by the inclination of the vessel, and that the point of her greatest inclination should be the term of this height above the centre of gravity.

PROPORTIONS FOR THE LENGTHS AND DIAMETERS OF MASTS IN THE ROYAL NAVY, FROM FALCONER.

Lengths of masts.—The length of the lower-deck and extreme breadth being added together, the half is the length of the main-mast; thus the length of the lower-deck of a seventy-four-gun ship is 176 feet; breadth, extreme, forty-eight feet eight inches; added together, they make 224 feet eight inches. The half, or 112 feet four inches, is the length of the main-mast; which being determined, the other masts bear the following proportion:—

Fore-mast, eight-ninths of the main-mast.

Mizen-mast, 100 guns, seven-eighths; ninety guns to fifty, six-sevenths; forty-four guns to twenty, five-sixths of the main-mast.

In sloops, the mizen-mast is three-fourths of the main-mast.

When the mizen-mast steps on the lower-deck, the depth of the hold is to be deducted from the length here given. This method is now generally practised in the royal navy.

Main-topmast, three-fifths of the main-mast.

Fore-topmast, eight-ninths of the main-topmast.

Mizen-topmast, three-fourths of the main-topmast.

In sloops, the mizen-topmast is five-sevenths of the main-topmast.

Topgallant-masts, one-half the length of the topmast.

Bowsprits, of eighty-gun ships and upwards, seven-elevenths of their main-masts. Bowsprits of seventy-four gun ships, and under, three-fifths of their main-masts.

Brig's main-masts. The depth in the hold is added to the length and breadth, and one-half is the length of the main-mast.

Cutter's main-masts. Add together the length of the deck, the breadth extreme, and depth in the hold; and three-quarters of that sum is the length of the main-mast.

The diameters of masts.—Main and fore-masts, of ships of 100 to fifty guns inclusive, are one inch in diameter at the partners to every yard in length. Ships of forty-four to thirty-two guns, inclusive, nine-tenths of an inch to every yard in length. And ships of twenty-eight guns, and under, seven-eighths of an inch to every yard in the length.

Main-masts of brigs, one inch to every yard in

length; and the fore-mast nine-tenths of the diameter of the main-mast.

Masts of cutters, three-fourths of an inch in diameter to every yard in length.

Mizen-masts of ships of 100 to sixty-four guns, inclusive, three-fifths of the diameter of the main-mast. Fifty-gun ships, and under, two-thirds of the diameter of the main-mast.

Main and fore-topmasts, one inch to every yard in the length of the fore-topmasts.

Mizen-topmasts, seven-tenths of the diameter of the main-topmast.

Topgallant-masts, one-inch to every yard in their lengths.

Royal-masts, two-thirds of the diameter of their topgallant-masts.

Bowsprits of ships of 100 to sixty-four guns inclusive, two inches less than the diameter of the main-mast. In fifty gun ships, and under, the same diameter as the main-mast.

PROPORTIONS FOR THE LENGTHS AND DIAMETERS OF BOOMS.

Lengths of booms.—Lower-studding sail-booms, five-ninths of the main-yard.

Top-studding sail-booms, one-half the length of the yards they go on.

Flying jib-boom, five-sevenths of the bowsprit
Driver-boom, the same length as the main topsail-yard.

Diameter of booms.—Studding sail-booms, one inch to every five feet in the length.

Flying jib-booms, seven-eighths of an inch to every yard in the length.

Driver-boom, the same as the fore-topsail yard.

PROPORTIONS FOR THE LENGTHS AND DIAMETERS OF MASTS, &c., FOR SLOOPs, SMACKs, AND HVOYS.

Lengths of the masts, &c.—Mast and topmast in one, thrice and three-fourths the whole length.

Mast to the rigging-stop or hounds, three-fourths the whole length.

Mast and topmast to the stop of the topmast, forty-one parts of the whole length.

Topgallant-mast to the rigging stop, four-sevenths of the length of the mast.

Boom, two-thirds of the mast.

Gaff, three-fifths of the boom.

Diameter of the masts, &c.—Mast, one-fourth of an inch to every foot in length.

Topgallant-mast, three-eighths of an inch to every foot in length.

Boom, three-sixteenths of an inch to every foot in length.

Gaff, one-fourth of an inch to every foot in length.

TABLE of the DIMENSIONS of MASTS now used in the Royal Navy.

NAMES OF THE MASTS.	110 GUNS. 2164 TONS.		90 GUNS. 1870 TONS.		80 GUNS. 1620 TONS.		74 GUNS. 1800 TONS.		64 GUNS. 1369 TONS.		50 GUNS. 1044 TONS.		44 GUNS. 879 TONS.		38 GUNS. 851 TONS.		
	Diam.		Length.		Diam.		Length.		Diam.		Length.		Diam.		Length.		
	Ft. In.	In.	Ft. In.	In.	Ft. In.	In.	Ft. In.	In.	Ft. In.	In.	Ft. In.	In.	Ft. In.	In.	Ft. In.	In.	
Main-mast	117	0	39	112	0	37½	0	35½	111	0	37	0	33½	101	0	33½	
Main-topmast	70	0	20½	66	0	19½	0	19½	66	0	19½	0	17½	58	6	17½	
Main-topgallant-mast	35	0	11½	33	0	11	32	0	10½	33	0	11½	29	3	9½	29	
Fore-mast	103	6	34½	100	0	33½	0	31½	98	6	32½	89	7	29½	81	6	29½
Fore-topmast	62	10	20½	59	0	19½	0	19½	58	8	19½	5	17½	48	0	16½	
Fore-topgallant-mast	31	0	10½	29	0	9½	28	6	9½	29	4	9½	26	6	8½	24	
Mizen-mast	101	4	23	96	6	22½	93	0	21½	95	0	22½	86	0	19½	78	
Mizen-topmast	52	0	14	49	0	13½	46	0	13½	49	0	13½	43	6	12½	40	
Mizen-topgallant-mast	26	0	8½	24	0	8	23	0	7½	24	6	8½	21	9	7½	20	
Bowsprit	74	0	37	71	0	35½	68	0	34	67	6	35	60	4	31½	56	

NAMES OF THE MASTS.	36 GUNS. 871 TONS.		32 GUNS. 677 TONS.		28 GUNS. 594 TONS.		24 GUNS. 513 TONS.		20 GUNS. 429 TONS.		SLOOPS OF 300 TONS.		BRIGS OF 200 TONS.		CUTTERS OF 200 TONS.	
	Length.	Diam.	Length.	Diam.	Length.	Diam.	Length.	Diam.	Length.	Diam.	Length.	Diam.	Length.	Diam.	Length.	Diam.
Main-mast	89	0 26	85	0 24½	81	4 23½	75	0 22½	72	0 21½	63	0 18½	56	0 19	88	0 22
Main-topmast	53	4 15½	51	0 15½	48	0 14½	45	0 13½	43	2 12½	37	6 11½	31	0 10	44	0 9½
Main-topgallant-mast	25	8 8½	25	6 8½	24	4 8	22	6 7½	21	7 7½	18	9 6½	23	6 6½	44	0 9½
Fore-mast	79	6 23½	75	0 22	72	0 20½	66	6 19½	64	0 19	56	0 16½	49	0 17		
Fore-topmast	47	0 15½	45	0 15½	43	0 14½	40	0 13½	38	4 12½	33	4 14½	31	0 10		
Fore-topgallant-mast	22	5 7½	22	6 7½	21	6 7	20	0 6½	19	2 6½	16	8 5½	23	6 6½		
Mizen-mast	74	8 17½	72	0 17	69	0 16½	64	0 15	61	0 14	48	0 12				
Mizen-topmast	40	0 11½	38	0 10½	36	7 10	33	9 9½	32	5 9	26	9 7½				
Mizen-topgallant-mast	20	0 6½	19	0 6½	18	3 6	16	10 5½	16	0 5½	13	0 4½				
Bowsprit	54	0 26	52	0 25	48	9 23½	45	0 22½	43	6 21½	37	6 18½	34	0 17	64	0 20

MASTER, *n. s.* & *v. a.*
MASTERDOM, *n. s.*
MASTERHAND,
MASTERJEST,
MASTERKEY,
MASTERSINew,
MASTERSTRING,
MASTERSTROKE,
MASTERLESS, *adj.*
MASTERLY, *adj.* & *adv.*
MASTERPIECE, *n. s.*
MASTERSHIP,
MASTERTEETH,
MASTERWORT,
MASTERY.

Sax. *mæft* (chief);
 Goth. *mæstur*;
 Teut. *meislu*; Fr.
maître; Ital. *mas-*
tre; Lat. *magister*.
 A chief; governor;
 director; owner;
 possessor; com-
 mander of a vessel;
 teacher: hence one
 skilled in a science
 or pursuit; a com-
 pellation of respect
 used to young gen-
 tlemen; a title of

Some living creatures have their *master-teeth* in-
 dented one within another like saws; as lions and
 dogs. *Id.*

The great mocking *master* mocked not then,
 When he said, Truth was buried here below.

Davies.

The princes of Germany did not *think* him sent
 to command the empire, who was neither able to rule
 his insolent subjects in England, nor *master* his re-
 bellious people of Ireland. *Id.*

This is the *masterpiece*, and most excellent part of
 the work of reformation, and is worthy of his ma-
 jesty. *Id.*

Very few men are wise by their own counsel, or
 learned by their own *teaching*; for he that was only
 taught by himself had a fool to his *master*.

Ben Jonson's Discovery.

He is a happy man that hath got the *mastership* at
 home; so as he can cross his will without a mutiny,
 and so please it that he makes it not a wanton.

Bp. Hall.

Humility is a virtue all preach, none practise, and
 yet every body is content to hear. The *master* thinks
 it good doctrine for his servant, the laity for the
 clergy, and the clergy for the laity. *Selden.*

'Tis done; and 'twas my *masterpiece*, to work

My safety 'twixt two dangerous extremes:

Scylla and Charybdis.

Dehnam's Sophy.

Beating up of quarters was his *masterpiece*.

Clarendon.

Chief *mastership* to dissect,

With long and tedious haveock, fabled knights

In battles feigned. *Milton's Paradise Lost.*

Who shall break the *master-jest*,

And what, and how, upon the rest?

Hudibras.

He could attain to a *mastership* in all languages,
 and found the depths of all arts and sciences.

Tillotson.

If gaming does an aged sire entice,

Then my young *master* swiftly learns the vice.

Dryden.

Spenser and Fairfax, great *masters* of our language,
 saw much farther into the beauties of our numbers
 than those who followed. *Id.*

Honour burns in me, not so fiercely bright,

But pale as fires when *mastered* by the light. *Id.*

This *master-key*

Frees every lock, and leads us to his person. *Id.*

As for the warmth of fancy, the *masterly* figures,
 and the copiousness of imagination, he has exceeded
 all others. *Id.*

This wondrous *masterpiece* I fain would see;

This fatal Helen, who can wars inspire. *Id.*

Two youths of royal blood, renowned in fight,

The *mastership* of heaven in face and mind. *Id.*

To give sufficient sweetness, a *mastership* in the lan-
 guage is required: the poet must have a magazine of
 words, and have the art to manage his few vowels to
 the best advantage. *Id.*

Then comes some third party, that *masters* both
 plaintiff and defendant, and carries away the booty.

L'Estrange.

This is the case of those that will try *masteries*
 with their superiors, and bite that which is too hard.

Id.

Masters and teachers should not raise difficulties to
 their scholars; but smooth their way, and help them
 forwards. *Locke.*

No care is taken to improve young men in their
 own language, that they may thoroughly understand,
 and be *masters* of it. *Id.*

Obstinacy and wilful neglects must be *mastered*,
 even though it costs blows. *Id. On Education.*

academical dignity: to master is to rule; go-
 vern; subdue; execute with skill: masterdom
 is rule; dominion (obsolete): masterless, want-
 ing a master or owner: masterly, with a master's
 skill; skilful; artful: mastership and skill;
 dominion; rule; superiority; chief work; mastery:
 masterwort, a plant.

As a wise *master-builder* I have laid the founda-
 tion; and another buildeth thereon. 1 Cor. iii. 10.

If a man strive for *masteries*, yet is he not crowned
 except he strive lawfully. 2 Tim. ii. 5.

An unhappy *master* is he that is made cunning by
 many shipwrecks; a miserable merchant, that is nei-
 ther rich nor wise, but after some bankrupts.

Ascham's Schoolmaster.

When all was past he took his forlorn weed,

His silver shield now idle *masterless*.

Faerie Queene.

But now I was the lord

Of this fair mansion, *master* of my servants,

Queen o'er myself; and even now, but now.

This house, these servants, and this same *myself*

Are yours, my lord.

Shakspeare. Merchant of Venice.

Chief *master-gunner* am I of this town,
 Something I must do to procure me grace.

Shakspeare.

A sailor's wife had chestnuts in her lap;
 Her husband 's to Aleppo gone, *master* o' the Tyger.

Id.

Great, and increasing; but by sea

He is an absolute *master*.

Id. Antony and Cleopatra.

Master doctor, you have brought those drugs.

Shakspeare.

Stand by, my *masters*, bring him near the king.

Id.

You shall put

This night's great business into my dispatch,

Which shall to all our nights and days to come

Give solely sovereign sway and *masterdom*. *Id.*

The foul opinion

You had of her pure honour, gains, or loses,
 Your sword or mine; or *masterless* leaves both

To who shall find them. *Id. Cymbeline.*

Thou dost speak *masterly*,

Young though thou art. *Shakspeare.*

You were used

To say extremity was the trier of spirits:

That when the sea was calm all boats alike

Shewed *mastership* in floating. *Id. Coriolanus.*

If divided by mountains, they will fight for the

mastership of the passages of the tops, and for the

towns that stand upon the roots. *Raleigh's Essays.*

I do not take myself to be so perfect in the trans-
 actions and privileges of Bohemia, as to be fit to
 handle that part: and I will not offer at that I can-
 not *master*.

Dehon.

The best sets are the heads got from the very tops of the root; the next are the runners, which spread from the *master* roots. *Mortimer's Husbandry.*

Masterwort is raised of seeds, or runners from the roots. *Id.*

Excuse

The pride of royal blood, that checks my soul:

You know, alas! I was not born to kneel;

To sue for pity, and to own a *master*. *Phillips.*

Wisdom and virtue are the proper qualifications in the *master* of a house. *Guardian.*

To the Jews join the Egyptians, the first *masters* of learning. *South.*

Let those consider this who look upon it as a piece of art, and the *masterpiece* of conversation, to deceive, and make a prey of a credulous and well-meaning honesty. *Id.*

He touched me

Even on the tenderest point, the *master-string*

That makes most harmony or discord to me.

I own the glorious subject fires my breast. *Rowe.*

When I have thus made myself *master* of a hundred thousand drachms, I shall naturally set myself on the foot of a prince, and will demand the grand vizir's daughter in marriage. *Addison.*

A man either discovers new beauties, or receives stronger impressions from the *masterly* strokes of a great author every time he peruses him. *Id.*

In the first ages, when the great souls, and *masterpieces* of human nature, were produced, men shined by a noble simplicity of behaviour. *Id.*

He that does not pretend to painting is not touched at the commendation of a *master* in that profession. *Collier.*

Ye skilful *masters* of Machaon's race,

Who nature's mazy intricacies trace:

Tell how your search has here elucidated been,

How oft amazed and ravished you have seen

The conduct, prudence, and stupendous art,

And *master-strokes* in each mechanic part. *Blackmore.*

That clearer strokes of *masterly* design,

Of wise contrivance, and of judgment shine,

In all the parts of nature. *Id.*

Good men I suppose to live in a state of mortification, under a perpetual conflict with their bodily appetites, and struggling to get the *masters* over them. *Atterbury.*

The reformation of an habitual sinner is a work of time and patience; evil customs must be *mastered* and subdued by degrees. *Calamy's Sermons.*

Master lay with his bedchamber towards the south sun; miss lodged in a garret, exposed to the north wind. *Arbutnot.*

The *master-sinew* is a large sinew that surrounds the hough, and divides it from the bone by a hollow place, where the wind-galls are usually seated, which is the largest and most visible sinew in a horse's body; this oftentimes is relaxed or restrained. *Furrier's Dictionary.*

O thou, my friend, my genius, come along,

Thou *master* of the poet, and the song. *Pope.*

Musick resembles poetry; in each

Are nameless graces which no methods teach,

And which a *master-hand* alone can reach. *Id.*

Where there are little *masters* and misses in a house, they are impediments to the diversions of the servants; the remedy is to bribe them, that they may not tell tales. *Swift.*

I read a book; I think it very *masterly* written. *Id.*

An' when they meet wi' sair disasters,

Like loss o' health, or want o' *masters*,

Ye maist wad think, a wee touch langer,
An' they maun starve o' could an hunger. *Burns.*

As christians, we are the servants of Christ; and the various duties which servants owe to their *masters* in any degree, those we owe to him in the highest degree. *Mason.*

MASTER, *magister*, was a title frequent among the Romans; they had their *master* of the people, *magister populi*, who was the dictator. *Master* of the cavalry, *magister equitum*, who held the second post in an army after the dictator. Under the late emperors there were also *masters* of the infantry, *magistri peditum*. A *master* of the census, *magister census*, who had nothing of the charge of a censor, or subcensor, as the name seems to intimate; but was the same with the *prepositus frumentarium*.

MASTER AT ARMS, an officer appointed to teach the officers and crew of a ship of war the exercise of small arms; to confine and plant sentinels over the prisoners, and superintend whatever relates to them during their confinement. He is also to observe that the fire and lights are extinguished as soon as the evening gun is fired, except those which are permitted by proper authority, or under the inspection of sentinels. It is likewise his duty to attend the gangway when any boats arrive aboard, and search them carefully, together with their rowers, that no spirituous liquors may be conveyed into the ship, unless by permission of the commanding officer. In these several duties he is assisted by proper attendants, called his corporals, who also relieve the sentinels and one another at certain periods.

MASTER, GRAND, a title given to the chiefs of the orders of knighthood, &c.; such as the grand *master* of Malta, of St. Lazarus, of the golden fleece, of the free-masons, &c. The late emperor Paul of Russia assumed the title of grand *master* of Malta, upon the French taking possession of the island; but did not live to enforce his claim to it.

MASTER AND SERVANT. The English law on this subject may be thus considered.

SECT. I.—OF THE DIFFERENT KINDS OF SERVANTS.

1. The first sort of servants, acknowledged by the laws of England, are *menial servants*; so called from being *intra mœnia*, or domestics. All single men between twelve years old and sixty, and married ones under thirty years of age, and all single women between twelve and forty not having any visible livelihood, are compellable by two justices to go out to service in husbandry or certain specific trades, for the promotion of honest industry: and no *master* can part away his servant, or servant leave his *master* after being so retained, either before or at the end of his term, without a quarter's warning; unless upon reasonable cause to be allowed by a justice of the peace: but they may part by consent, make a special bargain.

The contract between servants and their *masters* arises upon the hiring, and Blackstone observes, that, if the hiring be general without any particular time limited, the law construes it to

a hiring for a year, upon a principle of natural equity, that the servant shall serve and the master maintain him throughout all the revolutions of the respective seasons, as well when there is work to be done as when there is not. But, according to the general custom which has of late years prevailed, it seems that, if no special contract be made, a menial or domestic servant is entitled only to a month's warning or a month's wages in lieu of it. But a servant for moral turpitude, as incontinence, &c., may be turned away without notice. Where a servant is hired for a year and during that time falls sick, or is disabled, in his master's service, the servant cannot be turned away nor any part of his wages deducted. No stamp duty is requisite on a memorandum for the agreement or hire of any laborer, artificer, manufacturer, or menial servant.

2. Another species of servants are called *apprentices* (from *apprendre*, to learn), and are usually bound for a term of years by deed indentured, to serve their masters, and be maintained and instructed by them. This is usually done to persons of trade, in order to learn their art and mystery; and sometimes very large sums are given with them, as a premium for such their instructions: but it may be done to husbandmen, nay to gentlemen and to others. And children of poor persons may be apprenticed out by the overseers, with consent of two justices,

twenty-one years of age, to such persons as are thought fitting; who are also compellable to take them; and it is held, that gentlemen of fortune, and clergymen, are equally liable with others to such compulsion; for which purpose our statutes have made the indentures obligatory, even though such parish apprentice be a minor. Apprentices to trades may be discharged on reasonable cause, either at the request of themselves and masters, or at the quarter sessions, or by one justice, with appeal to the sessions; who may by the equity of the statute, if they think it reasonable, direct restitution of a rateable share of the money given with the apprentice, and parish apprentices may be discharged in the same manner by two justices. But if an apprentice, with whom less than £10 hath been given, runs away from his master, he is compellable to serve out his time of absence, or make satisfaction for the same at any time within seven years after the expiration of his original contract. Indentures of apprenticeship must be stamped. In all corporate towns they must also be enrolled, and in London this is done in the chamberlain's office.

3. A third species of servants are *laborers* who are only hired by the day or the week, and do not live intra mœnia, as part of the family, concerning whom the statutes before cited have made many very good regulations; 1. Directing that all persons who have no visible effects may be compelled to work. 2. Defining how long they must continue at work in summer and winter. 3. Punishing such as leave or desert their work. 4. Empowering the justices at sessions, or the sheriff of the county, to settle disputes.

4. There is yet a fourth species of servants if they may be so called, being rather in a superior,

a ministerial, capacity; such as *stewards, factors, and bailiffs*: whom, however, the law considers as servants pro tempore, with regard to such of their acts as affect their master's or employer's property.

SECT. II.—OF THE RIGHTS AND POWER OF THE MASTER.

1. A master may by law correct his apprentice for negligence or other misbehaviour, so it be done with moderation; though, if the master or master's wife beats any other servant of full age, it is good cause of departure. But if any servant, workman, or laborer, assaults his master or dame, he shall suffer one year's imprisonment and other open corporeal punishment not extending to life or limb.

According to the 4 Geo. IV. c. 34, if servants in husbandry and certain artificers and laborers contract to serve and refuse to perform such service, or absent themselves before the contract has expired, or be guilty of any misconduct, they are liable to be committed to the house of correction to hard labor for a period not exceeding three months, or in lieu thereof the whole or a proportional part of the wages may be deducted.

Apprentices misbehaving or absconding may be punished, under the authority of 4 Geo. IV. c. 34, sect. 3, by the abatement of the whole or part of their wages, or be committed to the house of correction for any time not exceeding three months.

2. The master may *maintain*, that is, abet and assist his servant in any action at law against a stranger, whereas, in general, it is an offence against public justice to encourage suits and animosities by helping to bear expense of them, and is called in law 'maintenance.' A master also may bring an action against any man for beating or maiming his servant: but in such case he must assign, as a special reason for so doing, his own damage by the loss of his service; and this loss must be proved upon the trial. A servant likewise may justify an assault in defence of his master: the master because he has an interest in his servant, not to be deprived of his service: the servant because it is part of his duty for which he receives his wages to stand by and defend his master. Also if any person do hire or retain a servant, being in the service of another, from which the servant departeth and goeth to serve the other, the injured party may have an action for damages against both the new master and the servant or either of them: but, if the new master did not know that the servant was retained by another, no action lies; unless he afterwards refuse to restore him upon information and demand. The reason and foundation upon which all this doctrine is built, seem to be the property that every man has in the service of his domestics; acquired by the contract of hiring, and purchased by giving them wages.

SECT. III.—OF THE MASTER'S LIABILITY FOR THE ACTS OF HIS SERVANT.

1. The acts which a servant may do on behalf of his master seem all to proceed upon this prin-

ciple, that the master is answerable for them, if done by his *command* either expressly given or implied, *nam qui facit per alium, facit per se*. Therefore if the servant commit a trespass, by the command or encouragement of his master, the master shall be guilty of it: though the servant is not thereby excused, for he is only to obey his master in matters that are honest and lawful. If an innkeeper's servants rob his guests the master is bound to restitution; for as there is a confidence reposed in him, that he will take care to provide honest servants, his negligence is a kind of implied consent to the robbery, *nam qui non prohibet, cum prohibere possit, jubet*. So likewise if the drawer at a tavern sells a man bad wine, whereby his health is injured, he may bring an action against the master; for although the master did not expressly order the servant to sell it to that person in particular, yet his permitting him to draw and sell it at all is impliedly a general command.

2. In the same manner, whatever a servant is permitted to do, in the usual course of his business, is equivalent to a general command. If I pay money to a banker's servant, the banker is answerable for it. If I pay it to a clergyman's or a physician's servant, whose business it is not to receive money for his master, and he embezzles it, I must pay it over again. If a steward lets a lease of a farm, without the owner's knowledge, the owner must stand to the bargain; for this is the steward's business. A wife, a friend, a relation that use to transact business for a man, are quoad hoc his servants, and the principal must answer for their conduct; for the law implies that they act under a general command; and without such a doctrine as this no mutual intercourse between man and man could subsist with any tolerable convenience. If I usually deal with a tradesman by myself, or constantly pay him ready money, I am not answerable for what my servant takes up upon trust; for here is no implied order to the tradesman to trust my servant: but if I usually send him upon trust, or sometimes on trust and sometimes with ready money, I am answerable for all he takes up; for the tradesman cannot possibly distinguish when he comes by my order, and when upon his own authority.

3. If a servant by his *negligence* does any damage to a stranger, the master shall answer for his neglect. If a smith's servant lames a horse, while he is shoeing him, an action lies against the master, and not against the servant. But in these cases the damage must be done while he is actually employed in the master's service: otherwise the servant shall answer for his own misbehaviour. Upon this principle by the common law if a servant kept his master's fire negligently, so that his neighbour's house was burned down, thereby an action lay against the master; because this negligence happened in his service: otherwise, if the servant, going along the street with a torch, by negligence sets fire to a house; for there he is not in his master's immediate service: and must himself answer the damage personally. But now the common law is, in the former case, altered by stat. 6 Ann. c. 3, which ordains that no action shall be main-

tained against any in whose house or chamber any fire shall accidentally begin; for their own loss is sufficient punishment for their own or their servants' carelessness. But if such fire happens through negligence of any servant (whose loss is commonly very little) such servant shall forfeit £100 to be distributed among the sufferers; and in default of payment shall be committed to some workhouse, and there kept to hard labor for eighteen months. A master is lastly chargeable if any of his family layeth or casteth any thing out of his house into the street or common highway, to the damage of any individual, or the common nuisance of his majesty's liege people: for the master hath the superintendence and charge of all his household.

In all the cases here put the master may be frequently a loser by the trust reposed in his servant, but never can be a gainer; he may frequently be answerable for his servants' misbehaviour, but never can shelter himself from punishment by laying the blame on his agent. The reason of this is still uniform and the same; that the wrong done by the servant is looked upon in law as the wrong of the master himself; and it is a standing maxim, that no man shall be allowed to make any advantage of his own wrong.

4. It has been held that a master is not liable on an implied assumpsit to pay for medical attendance on a servant who has met with an accident in his service: 3 Bos. and Pul. 247.

SECT. IV.—OF THE RIGHTS AND REMEDIES OF THE SERVANT.

1. By hiring and service for a year, or apprenticeship under indentures, a person gains settlement in that parish, wherein he last served forty days.

2. Persons serving seven years, as apprentices to any trade, have an exclusive right to exercise that trade in any part of England. This law, with regard to the exclusive part of it, has by turns been looked upon as a hard law, or as a beneficial one, according to the prevailing humor of the times, which has occasioned a great variety of resolutions in the courts of law concerning it; and attempts have been frequently made for its repeal, though hitherto without success. At common law every man might use what trade he pleased; but this statute restrains that liberty to such as have served as apprentices, the adversaries to which provision say, that all restrictions (which tend to introduce monopolies), are pernicious to trade. The advocates for it alledge, that unskilfulness in trades is equally detrimental to the public, as monopolies. This reason indeed only extends to such trades, in the exercise whereof skill is required; but another of their arguments goes much further, viz. that apprenticeships are useful to the commonwealth, by employing of youth, and teaching them to be early industrious; but that no one would be induced to undergo a seven years' servitude, if others, though equally skilful, were allowed the same advantages, without having undergone the same discipline; and in this there seems to be much reason. However the resolutions of the courts

have in general rather confined than extended the restriction. No trades are held to be within the statutes, but such as were in being at the making of it: for trading in a country village apprentices are not requisite, and following the trade seven years without any effectual prosecution (either as a master or a servant) is sufficient, without an actual apprenticeship.

3. By service all servants and laborers, except apprentices, become entitled to wages according to their agreement, if menial servants; or, if laborers or servants in husbandry, according to the provisions in the statutes for regulation of such servants.

By the 1 Geo. IV., cap. 93, the custom is prohibited, which prevails in some places, of compelling workmen to receive their wages in provisions in lieu of money. And persons so offending are subject to a penalty of £20, besides other forfeitures by the previous law, and costs. By the 5 Geo. IV., c. 96, there are several salutary regulations for settling disputes, which arise respecting wages, the hours of labor, the finishing of work, the finding implements, and the compensation to be given for any new or altered manufacture. These disputes, if the parties cannot agree to submit them to a magistrate, are decided by arbitrators chosen according to the provisions of the act, and who have power to examine witnesses on oath, and magistrates may compel the attendance of witnesses, and the award may be enforced by distress and sale of goods.

4. In case of the master's bankruptcy, the servant's wages, or those of a clerk, are usually directed by the commissioners to be paid to the extent (if due) of six months' wages. And the clerk or servant may prove for the residue, and receive a dividend along with the other creditors. A commission of bankruptcy issued against the master discharges the apprentice, and a proportion of the premium, under the provisions of the 6 Geo. IV. c. 16, must be repaid by the assignees according to the term remaining unexpired.

5. Apprentices are not liable to impressment in the navy. And, if they enlist into the army, they are liable to imprisonment for two years and hard labor.

6. As to the character of a servant, it appears that a master cannot be compelled to give a servant a character; but if he give one it must be true.

No action can be maintained if the character be given to the best of the master's knowledge, and without malice.

Giving a false character of a servant, or a false account of his service, renders the party offending liable to a penalty of £20, and 10s. costs. And a servant bringing a false character, or altering a certificate of character, is subject to the same forfeiture.

MASTER OF ARTS, the first degree taken up in foreign universities, as well as in those of Scotland; but the second in — of Cambridge and Oxford; candidates not admitted to it till they have studied in — iversity seven years.

MASTER OF A SHIP, an officer to whom

committed the direction of a merchant vessel, who commands it in chief, and is charged with the merchandises aboard. In the Mediterranean the master is frequently called patron, and, in long voyages, captain. The proprietor of the vessel appoints the master; and the master provides the equipage, hires the pilots, sailors, &c. The master is obliged to keep a register of the seamen and officers, the terms of their contract, and the receipts and payments.

MASTER OF A SHIP OF WAR is an officer appointed, by the commissioners of the navy, to take charge of navigating a ship from port to port under the direction of the captain. The management and disposition of the sails, the working of a ship into her station in the order of battle, and the direction of her movements in the time of action, and in other circumstances of danger, are also more particularly under his inspection. It is likewise his duty to examine the provisions, and accordingly to admit none into the ship but such as are sound, sweet, and wholesome. He is moreover charged with the stowage; and for the performance of these services he is allowed several assistants, who are properly termed mates and quarter-masters.

MASTER OF THE CEREMONIES, an officer instituted by king James I. for the more solemn and honorable reception of ambassadors and strangers of quality, whom he introduces into the presence.

MASTER OF THE HORSE is reckoned the third great officer of the court, and is an office of great honor and antiquity, and always (when not put in commission) filled by noblemen of the highest rank and abilities. He has the management and disposal of all the king's stables and bred horses. He has authority over the equerries and pages, coachmen, footmen, grooms, riders of the great horse, farriers, and smiths. He appoints all the other tradesmen who work for the king's stables; and, by his warrant to the avenor, makes them give an oath to be true and faithful. In short, he is entrusted with all the lands and revenues appropriated for the king's breed of horses, the expenses of the stable, and of the coaches, litters, &c. He alone has the privilege of making use of any of the king's horses, pages, footmen, &c.; and at any solemn cavalcade he rides next the king, and leads a horse of state.

MASTER OF THE MILITIA, *magister militiarum*, was an officer in the lower empire, created, as it is said, by Dioclesian, who had the inspection and government of all the forces, with power to punish, &c., somewhat like a constable of France. At first there were two of these officers instituted, the one for the infantry, and the other for the cavalry; but the two were united into one under Constantine. Afterwards, as their power was increased, so was their number also; and there was one appointed for the court, another for Thrace, another for the East, and another for Illyria. They were afterwards called *comites*, *counts*, and *clarissimi*. Their power was only a branch of that of the *præfectus prætorii*, who by that means became a civil officer.

MASTER OF THE MINT was anciently the title of him who is now called Warden of the Mint: whose office is to receive the silver and bullion

which comes to the mint to be coined, and to take care thereof.

MASTER OF THE ROLLS, a patent officer for life, who has the custody of the rolls and patents which pass the great seal, and of the records of the chancery. In the absence of the lord chancellor, or keeper, he also sits as judge in the court of chancery; and is by Sir Edward Coke called his assistant. He hears causes in the rolls chapel, and makes orders and decrees. He is also the first of the masters of chancery, and has their assistance at the rolls: but all hearings before him are appealable to the lord chancellor. He has also his writ of summons to parliament, and sits next to the lord chief justice of England on the second woolpack. He has the keeping of the parliament rolls, and has the rolls-house for his habitation; as also the custody of all charters, patents, commissions, deeds, and recognisances, which being made of rolls of parchment gave rise to the name. Anciently he was called clerk of the rolls. Concerning the authority of the master of the rolls to hear and determine causes, and his general power in the court of chancery, there were divers questions and disputes very warmly agitated; to quiet which it was declared, by stat. 3 Geo. II. c. 30, that all orders and decrees by him made, except such as by the course of the court were appropriated to the great seal alone, should be deemed valid; subject nevertheless to be discharged or altered by the lord chancellor, and so as they shall not be inrolled till the same are signed by his lordship. In his gift are the six clerks in chancery, the examiners, three clerks of the petty bag, and the six clerks of the rolls-chapel where the rolls are kept. The master of the rolls is always of the privy council.

MASTER OF THE TEMPLE. The founder of the order of the templars, and all his successors, were called *magni templi magistri*; and, ever since the dissolution of the order, the clerical guide and director of the house is called by that name. There were also several other officers under this denomination; as, master of the wardrobe, with a salary of £2000 a-year; master of the harriers, with £2000 a-year; master of the stag-hounds, with £800 a-year; master of the jewel office, &c., all now abolished.

MASTERS OF CHANCERY are usually chosen out of the barristers of the common law; and sit in chancery, or at the rolls, as assistants to the lord chancellor and the master of the rolls. All these, so late as the reign of queen Elizabeth, were commonly doctors of the civil law. To them are also committed interlocutory reports, examination of bills in chancery, stating of accounts, taxing costs, &c., and sometimes, by way of reference, they are empowered to make a final determination of causes. They have time out of mind had the honor to sit in the house of lords, though they have neither writs nor patent to empower them; but they are received as assistants to the lord chancellor and the master of the rolls. They had anciently the care of inspecting all writs of summons, which is now performed by the clerk of the petty bag. When any message is sent from the lords to the commons it is carried by the masters of chancery. Before them also affi-

davits are made, and deeds and recognisance acknowledged. Besides these, who may be called masters of chancery ordinary, being twelve in number, of whom the master of the rolls is reputed the chief, there are also,

MASTERS OF CHANCERY EXTRAORDINARY appointed to act in the several counties of England beyond ten miles' distance from London, by taking affidavits, recognisances, &c., for the ease of the suitors of the court.

MASTER LOAD, in mining, a term used to express the larger vein of a metal in places where there are several veins in the same hill. Thus it often happens that there are seven, sometimes five, but more usually three veins or loads, parallel to each other, in the same hill. Of these the middle vein is always much the largest. This is called the master load; and the others, which lie three, two, or one, on each side of this, are called the concomitants of the master load.

MASTICATION, n. s. } Latin *masticatio*
MASTICATORY. } Gr. *μαστω*. Chew-
 ing: a medicine to be chewed.

Remember *masticatories* for the mouth.

In birds there is no *mastication*, or comminution of the meat in the mouth; but in such as are not carnivorous it is immediately swallowed into the crop or craw, and thence transferred into the gizzard.

Ray on the Creation.
Mastication is a necessary preparation of solid aliment, without which there can be no good digestion.

Arbuthnot.
 Salivation and *masticatories* evacuate considerably salivation many pints of phlegm in a day, and very much by chewing tobacco.

Floyer on Humors.
MASTICATION is the act of agitating the solid parts of our food between the teeth, by the motion of the jaws, the tongue, and the lips, whereby it is broken into small pieces, impregnated with saliva, and so fitted for deglutition and more easy digestion. See **ANATOMY**.

MASTICH, n. s. Fr. *mastic*; Ital. *mastico*, Lat. *mastiche*. A kind of gum or cement. See below.

As for the small particles of brick and stone, the least moistness would join them together, and turn them into a kind of *mastich*, which those insects could not divide.

Addison.
 We may apply interciipients upon the temples of *mastich*; frontals may also be applied. *Wiseman.*

MASTICH is a kind of resin exuding from the lentiscus tree, and brought from Chio in small yellowish transparent grains, of an agreeable smell, especially when heated or set on fire. See **PISTACHIA**. This resin is recommended in coughs, dysenteries, weakness of the stomach and in general in all debilities, and laxity of the fibres. Geoffroy directs an aqueous decoction of it to be used for these purposes: but water extracts little or nothing from this resin. Rectified spirit almost entirely dissolves it, and the solution is very warm and pungent. Mastich is to be chosen in drops, clear, well scented, and brittle. See **VARNISH**.

MASTICH is also a kind of cement, composed of the above gum and several other ingredients formed into cakes, for the use of the lapidaries

to fill up cracks in stones, &c., but on no account to be used for any medicinal purposes.

MASTICOT, *n. s.* Lat. *marum*. An oxyde of lead. See **MASSICOT**.

Grind your *masticot* with saffron in gum water.

Peacham.

Masticot is very light because it is a very clear yellow, and very near to white.

Dryden's Dufresnoy.

MASTICOT, or yellow lead, is the calx or ashes of lead, gently calcined, by which it is changed to a yellow or lighter or deeper tint, according to the degree of calcination. *Masticot* is sometimes used by painters, and it serves medicinally as a drier in the composition of ointments or plasters. The *masticot*, which is used by the Dutch as the ground of their glazing, is prepared by calcining a mixture of 1 cwt. of clean sand, 44lbs. of soda, sold under the name of *barilla*, and 30lbs. of pearl ashes.

MASTIFF, *n. s.* } Fr. *mestif*, originally of
MAS'TIVES, *plu.* } Goth. *mast*, greatness; and
tave, a dog. A large species of dog.

As savage bull, whom two fierce *mastives* bait,
 When rancour doth with rage him once engore,

Forgets with wary ward them to await,

But with his dreadful horns them drives afore.

Spenser.

When rank Thersites opes his *mastiff* jaws,
 We shall hear musick, wit, and oracle.

Shakspeare.

Horror of sin, like a sleeping *mastiff*, lies at our door; when it awakes it will fly on our throat.

Bp. Hall.

When we knock at a farmer's door, the first answer shall be his vigilant *mastiff*.

More's Antidote against Atheism.

Soon as Ulysses near the enclosure drew,
 With open mouths the furious *mastives* flew.

Pope.

Let the *mastiffs* amuse themselves about a sheep's skin stuffed with hay, provided it will keep them from worrying the flock.

Swift.

MASTLIN, *n. s.* Fr. *mester*, to mingle; or perhaps corrupted from *miscellane*. Mixed corn; as wheat and rye.

The tother for one lofe hath twaine
 Of *mastlin*, of rie and of wheat.

Tusser's Husbandry.

MASUAH, a principal sea-port of Abyssinia, situated on an island, separated from the continent by a narrow channel. Masuah Bay has the town of Arkekow (Adulis) on its southern shore, before which is anchorage sheltered from all winds except those between east and north. The town of Masuah has some fortifications, the houses are chiefly built of reeds lined with mats. This is the principal trading place of Abyssinia, and provisions are abundant but dear: it has no water but what is preserved in cisterns from the rains, and, this not being sufficient, boats are constantly bringing this article from Arkekow.

The island itself is only about three-quarters of a mile in length, and about half that breadth, about one-third of which is occupied by houses. There are however about twenty of stone taken from the sea, and exhibiting the remains of shell-fish imbedded in it. Masuah in early times possessed a share of the trade of India; but, after

it fell into the hands of the Turks, this fell to decay. Its situation, however, renders it the only mart for the produce of Abyssinia. Its intercourse is chiefly with Mocha and Jidda: the imports consisting of cotton wool, spices, piece goods, lead, iron, copper, tin, and European manufactures, estimated at 400,000 dollars per annum, exclusive of the cotton wool. The exports are rhinoceros' horns, gold, ivory, honey, slaves, and wax. These articles are brought from the interior by a caravan, which arrives in February. The government demands ten per cent., ad valorem, on all imports and exports.

MASULIPATAM, or **MUCHLIPATAM** (Fish-town), a considerable sea-port of Hindostan, in the district of Condapilly, and the Northern Circars. It is situated in a fertile territory, and inhabited by artisans, who have long caused it to be celebrated for the fineness and brilliant color of its cotton cloths, or chintzes. It carries on a considerable traffic with China, Pegu, Bengal, Persia, and Arabia. The harbour is capable of admitting vessels of 300 tons, and is the best port on the coast of Coromandel. An oblong fort (800 yards long by 600 broad) is situated near the sea and at the mouth of a river; the adjoining grounds may be inundated at pleasure, and this in fact constitutes its chief defence. The Black Town, a mile and a half to the north-west of the forts, may also be inundated. Masulipatam was conquered successively by the Mahometans and the nizam of the Deccan, who made it over with the province to the French in 1751, when they much improved the town and fortifications. It was, however, taken by the British in April 1759, with whom it has remained. It is the residence of a judge, collector, &c., of the district. Long. 81° 10' E., lat. 16° 10' N.

MAT, *n. s. & v. a.* } Saxon *meatte*; Dan
MAT'RING, *n. s.* } and Teut. *matte*; Wel
mat; Ital. *matta*; Lat. *matta*. A texture of sedge, flags, cord, or rushes: to cover with mats; to weave like matting; involve: matting is synonymous with mat, *n. s.*

I on a fountain light,
 Whose brim with pinks was platted;

The banks with daffadillies dight,

With grass like sleeve was matted. *Drayton.*

The women and children in the west of Cornwall make *mats* of a small and fine kind of bents there growing, which serve to cover floors and walls.

Curw's Survey of Cornwall.

Sometimes beneath an ancient oak,
 Or on the matted grass he lies;

No god of sleep he did invoke:

The stream that o'er the pebbles flies,

With gentle slumber crowns his eyes. *Dryden.*

He looked a lion with a gloomy stare,

And o'er his eye-brows hung his matted hair. *Id.*

Keep the doors and windows of your conservatories well matted and guarded from the piercing air.

Euelyn's Kalendar.

The spleen consisteth of muscular fibres, all matted, as in the skin, but in more open work.

Grew's Cosmologia.

In the worst inn's worst room, with mat half hung,

The floors of plaister, and the walls of dung.

Pope.

Drawn from his refuge in some lonely elm,
That age or injury has hollowed deep,
Where, on his bed of wool and matted leaves,
He has outslept the winter, ventures forth
To frisk awhile, and bask in the warm sun,
The squirrel, flippant, pert, and full of play.

Cowper.

MATADORE', *n. s.* Span. *matador*, a murderer. One of the three principal cards in ombre and quadrille, which are always the two black aces, the deuce in spades and clubs, and the seventh in hearts and clubs.

Now move to war her sable *matadores*,
In show like leaders of the swarthy Moors.

Pope.

MATACHIN', *n. s.* Fr. *matachin*. An old dance.

Who ever saw a *matachin* dance to imitate fighting: this was a fight that did imitate the *matachin*; for they being but three that fought, every one had two adversaries striking him, who struck the third.

Sidney.

MATAMBA, a country in the interior of South-western Africa, little known except by the reports of Portuguese missionaries. It is represented as mountainous, and as giving rise to the Barbelá, or principal branch of the Zaire or Congo; but this is not confirmed. It is said to be about 150 miles square, partly occupied by the Giagas, a people the terror of this part of Africa. Umbe Upper and Lower, Ganghelli Upper and Lower, and Bondo, are mentioned as its provinces.

MATARO, a city of Spain, in Catalonia, twenty miles E. N. E. of Barcelona, near the sea. It is divided into the Old and New Town, the former being of great antiquity and preserving the walls and gates of a remote age. It appears to have been a place of note under the Romans, and is supposed to be the Illuro of Ptolemy and Pomponius Mela. The New Town lies between the Old Town and the sea, and has its streets wide, straight, and regular. Many of the houses are painted in fresco. Mataro is one of the few towns in Spain that are on the increase: its population, in 1770 only 10,000, now amounts, it is said, to 25,000. The inhabitants carry on manufactures of laces, calico, silk and cotton stockings, silk stuffs and velvets, ribands and silk twist, canvas and leather. Bay salt is collected along the shore; and the neighbourhood affords both wine and brandy. A small stream, called La Riera, runs through the Old Town, and the supply of water is good. Mataro contains an hospital, a parish church, and five chapels belonging to monasteries and convents. Long. 2° 28' 24" E., lat. 41° 32' 26" N.

MATAVAI BAY, a bay on the north side of the island of Otaheite, opening to the north-west. The entrance is between a reef and sunken rock; but ships when in are well sheltered against all winds, except those from the west and north-west. Long. 149° 36' W., lat. 17° 29' S.

MATAVAI POINT, a cape on the island of Otaheite, in long. 210° 22' E., lat. 17° 29' S.

MATCH, *n. s. & v. n.* Saxon *maca*; Goth. *match*, *adj.* } *magask*, *make*; Danish *match*, *less*, } *mage* (the Goth. *mag* is *matchlessly*, *adv.* } a near relative). A *matchmaker*, *n. s.* } pair; one thing or per-

son that equals another; hence one to be married, and a marriage: also a contest, or a person considered as equal to another in conflict: to match is to be equal to; show or oppose as an equal; suit; proportion; marry or give in marriage; be married; suit: matchable is suitable; equal; corresponding: matchless, unequalled: a matchmaker, one who contrives marriages; often a person of equal respectability with the maker of the following article.

A thing that may luckily fall out to him that hath the blessing to *match* with some heroic-minded lady. *Sidney.*

Ye, whose high worths surpassing paragon,
Could not on earth have found one fit for mate,

Ne but in heaven *matchable* to none,

Why did you stoop unto so lowly state? *Spenser.*

Great king,

I would not from your love make such a stray,

To *match* ye where I hate.

Shakspeare. King Lear.

Shall we play the wantons with our foes,
And make some pretty *match* with shedding tears.

Shakspeare.

The *match*

Were rich and honourable; besides, the gentleman
Is full of virtue, bounty, worth, and qualities,
Beseeming such a wife as your fair daughter.

Shakspeare.

No settled senses of the world can *match*

The pleasure of that madness. *Id.*

O thou, good Kent, how shall I live and work

To *match* thy goodness! life will be too short,

And every measure fail me. *Id. King Lear.*

I hold it a sin to *match* in my kindred.

Shakspeare.

She inherited a fair fortune of her own, and was
very rich in a personal estate, and was looked upon
as the richest *match* of the West. *Clarendon.*

Thou dost protest thy love, and wouldst it show
By *matching* her, as she would *match* her foe.

Dante.

Unequal *matches* are seldom prosperous.

Bp. Hall.

Them willingly they would have still retained,

And *matched* unto the prince. *Daniel's Civil War.*

Eternal night

To *match* with their inventions they presumed

So easy, and of his thunder made a scorn.

Milton.

You came to him to know

If you should carry me, or no;

And would have hired him and his *imps*

To be your *matchmakers* and *pimps*. *Hudibras.*

Let poets *match* their subject to their strength,

And often try what weight they can support.

Roscommon.

This happy day two lights are seen,

A glorious saint, a *matchless* queen. *Waller.*

Love doth seldom suffer itself to be confined by
other *matches* than those of its own making. *Boyle.*

Let tygers *match* with hinds, and wolves with
sheep,

And every creature couple with his foe. *Dryden.*

All creatures else are much unworthy thee,

They *matched*, and thou alone art left for me.

Id.

Much less, in arms, oppose thy *matchless* force,
When thy sharp spurs shall urge thy foaming horse.

Id.

The goat was mine, by singing fairly won.

A solemn *match* was made; he lost the prize. *Id.*

With him she strove to join Lavinia's hand,
But dire portents the purposed match withstand.

Id.

The shepherd's kalendar of Spenser is not to be
matched in any modern language.

Id.

The old man has met with his match.

Spectator.

A senator of Rome, while Rome survived,
Would not have matched his daughter with a king.

Adrian.

Government mitigates the inequality of power,
and makes an innocent man, though of the lowest
rank, a match for the mightiest of his fellow-subjects.

Id.

When a man thinks himself matched to one who
should be a comfort to him, instead thereof he finds
in his bosom a beast.

South.

No history or antiquity can match his policies and
his conduct.

Id.

Mine have been still

Matched with my birth; a younger brother's hopes.

Rowe.

Those at land that are not matchable with any upon
our shores, are of those very kinds which are found
nowhere but in the deepest parts of the sea.

Woodward's Natural History.

The natural shame that attends vice, makes them
zealous to encourage themselves by numbers, and
form a party against religion: it is with pride they
survey their increasing strength, and begin to think
themselves a match for virtue.

Rogers.

Employ their wit and humour in chusing and
matching of patterns and colours.

Swift.

MATCH, *n. s.* } Fr. *meche*; Ital. *micchia*;

MATCHMAKER. } Gr. *μυρς*. Dried fungus;
a splinter or cord used to set fire to a candle or
gun.

Try them in several bottle matches, and see which
of them last longest without stench.

Bacon.

He made use of trees as matches to set Druina a
fire.

Hewel.

Being willing to try something that would not
cherish much fire at once, and would keep fire much
longer than a coal, we took a piece of match, such as
soldiers use.

Boyle.

A MATCH is a kind of rope slightly twisted,
and prepared to retain fire for the uses of artil-
lery, mines, fire-works, &c. It is made of
hempen tow, spun on the wheel like cord, but
very slack; and is composed of three twists,
which are afterwards again covered with tow, so
that the twists do not appear; lastly, it is boiled
in the lees of old wines, saltpetre, &c. This,
when once lighted at the end, burns on gradually
and regularly, without ever going out till the
whole be consumed: the hardest and driest match
is generally the best.

MATCHING, in the wine trade, the art of
preparing vessels to preserve wines and other
liquors, without their growing sour or vapid.
The method is as follows:—Melt brimstone in
an iron ladle, and, when thoroughly melted, dip
into it slips of coarse linen cloth; take these out
and let them cool: this the wine-coopers call a
match. Take one of these matches, set one end
of it on fire, and put it into the bung-hole of a
cask; stop it loosely, and thus suffer the match
to burn nearly out; then drive in the bung tight
and set the cask aside for an hour or two. At
the end of this time examine the cask, and you
will find that the sulphur has communicated a

violent, pungent, and suffocating scent to the
cask, with a considerable degree of acidity. The
cask may after this be filled with a small wine
which has scarcely done its fermentation; and,
bunging it down tight, it will keep good, and
will soon clarify: this is a common and very
useful method; for many poor wines could
scarcely be kept potable even a few months with-
out it.

MATE, *v. a.* Fr. *mat, matter*; Span. *mate*,
matar; Pers. *mat* (confounded). To confound,
astonish, subdue, crush: obsolete.

My sense she's mated, and amazed my sight.

Shakspeare.

That is good deceit

Which mates him first, that first intends deceit. *Id.*

Why this is strange; go call the abbess hither;
I think you are all mated, or stark mad. *Id.*

The great effects that may come of industry and
perseverance who knoweth not? For audacity doth
almost blind and mate the weaker sort of minds.

Bacon's Natural History.

MATE, *n. s. & v. a.* Sax. *maca*; Belg. *maet*;
Isl. *mat*. See MATCH. A companion, husband,
or wife: in naval affairs a second in subordi-
nation, as the master's, surgeon's mate, &c.: to
mate, is to match; marry; equal; and hence to
oppose.

I that am frail flesh and earthly wight,
Unworthy match for such immortal mate,
Myself well wote, and mine unequal fate.

Faerie Queene.

Ensamble make of him your hapless joy,
And of myself now mated as you see,
Whose prouder vaunt, that proud avenging boy
Did soon pluck down, and curb my liberty. *Id.*

Go, base intruder! over-weening slave!
Bestow thy fawning smiles on equal mates.

Shakspeare.

I'll the way of loyalty and truth,
Dare mate a sounder man than Surrey can be,
And all that love his follies. *Id. Henry VIII.*
The hind that would be mated by the lion,
Must die for love.

Id. All's Well that Ends Well.

You knew me once no mate
For you: there sitting where you durst not soar.

Milton.

Part single, or with mate,
Graze the sea-weed their pasture, and through groves
Of coral stray. *Id. Paradise Lost.*

What vengeance on the passing fleet she poured,
The master frightened, and the mates devoured.

Roscommon.

Leave thy bride alone:
Go leave her with her maiden mates to play
At sports more harmless, till the break of day.

Dryden.

Some from seeds inclosed on earth arise,
For thus the mastful chesnut mates the skies. *Id.*
Pliny tells us, that elephants know no copulation
with any other than their own proper mate.

Ayliffe.

Her faithful mate will share her toil,
Or wif his song her cares beguile.

Burns.

MATE OF A MERCHANT SHIP, the officer who
commands in the absence of the master thereof,
and shares the duty with him at sea; being
charged with every thing that regards the inter-
nal management of the ship, the directing her
course, and the government of her crew.

MATE OF A SHIP OF WAR, an officer under the direction of the captain, by whose choice he is generally appointed, to assist him in the several branches of his duty. Accordingly he must be particularly attentive to the navigation in his watch, &c., to keep the log regularly, and examine the line and glasses by which the ship's course is measured, and to adjust the sails to the wind in the fore part of the ship. He must pay a diligent attention to the cables, and see that they are well coiled and kept clean when laid in the tier, and sufficiently served when employed to ride the ship. He must also super-

intend and assist the stowage of the hold, taking special care that all the ballast and provisions are properly stowed therein. The number of mates allowed to ships of war and merchantmen is always in proportion to the size of the vessel. Thus a first-rate man of war and an East India-man have each six mates; a frigate of ten guns, and a small merchant-ship, only one each; and the intermediate ships have a greater or smaller number, according to their sizes or to the services on which they are employed.

MATER DURA, MATER PIA; two membranes surrounding the brain. See **ANATOMY**, Index.

M A T E R I A M E D I C A.

MATERIA MEDICA is a combined term which constitutes in a manner its own definition. No one who hears it announced can for a moment be at a loss in respect of its signification. In regard, however, to what the term should properly comprehend, opinion varies, some confining the materia medica to the designation of those substances which act therapeutically, or, in other words, which remedy or cure disease; while others extend it so as to embrace every material which assists in the support of life or the nourishment of man. Then again, the term is made to apply to compounds by some, while others restrict its signification to the mere articles of medicine as presented by nature, or at least as employed without being made to undergo the changes operated upon them by chemical process and combination.

In the present article we shall adopt the more limited signification of materia medica, since we have treated of the alimentaria (see **ALIMENT**) in another part of the work—and because we think that, when made the subjects of formative and chemical and combined change, medicines ought then to be considered under the word **PHARMACY**. In this separation, indeed, we are guided by still other motives; for we shall by adopting it prevent an undue and disproportionate length in this article, devoted to the consideration of healing powers, and, by deferring the account of pharmacy till the last moment of alphabetical permission, we shall be better enabled to carry up its alterations and improvements (for it is at this time undergoing them rapidly) to the latest date.

A history of materia medica would in some sort be a history of medicine itself; for substances employed in the cure of diseases have been in a measure regulated by the varying opinions of the times in respect to their mode of operating. Thus although the materia medica of Hippocrates was comparatively simple, and comprising but a few articles, it was still more simplified by his follower Erasistratus, and we have had an example in our own times of an attempt so to reduce and simplify the agency of medicine, that the practitioner of this school would lessen the list of materials employed in medicine almost to nihility. Our readers will understand that we allude to

the system of Dr. John Brown, which, were it to the letter correct, would do away altogether the distinction of medicines as to their virtues and influences, and make the materia medica a mere compilation of natural history.

To the natural historian indeed, after all, we have been more indebted for the progress of materia medica knowledge than to the medical theorists, since the former from the commencement of time has pursued the plan of observation and research, and has been less trammelled in his observations on properties by the reigning doctrines of the times. It must, however, be admitted that, when to the description of plants the ancient naturalists added their medical virtues, they often did so in the spirit of extravagance and hypothesis, which very materially lessened the value of their labors.

The materia medica has further been much modified by place and circumstance, that is, accordingly as the therapeia of medicine was more cultivated in one than another part of the world, so were more or less copious lists of medicinal articles added to those already in use. Thus, when the study of medicine was principally confined to Arabia, the attention of its professors was greatly directed to additions of medicines, which their climate and their connexion with the nations still further east had introduced to their notice. Indeed it was in this part of the world that the first notion was given of that extravagant proposition which assumed the possibility of compounding medicinals into such a mixture as to constitute a universal medicine, or elixir vitæ. See **ALCHEMY** and **CHEMISTRY**.

As thus the progress of the science has been influenced by the circumstances of time, place, and opinion; so has the method in which the naturals composing it should be arranged and classified been the subject of controversy: some maintaining the propriety of disposing medicinal articles according to their essential properties, others according to their therapeutic virtues; others again have pursued the principle of natural or botanical analogies, while an alphabetical arrangement has been adopted by others under the conviction that all classification except a literal one, causes not only uncertainty but repetition. Suppose, for example, astringency

to be taken as one of the heads, under which medicinal substances should be arranged, the very term itself involves an hypothesis, some contending that astringency is operated in one way, and some in another—then the plant or substance, in question, besides being possessed of an astringent property, may be endowed with other virtues, as of a tonic (if the latter principle of agency be admitted), and of course, under the word Tonic, it ought to be inserted again; so that, by the very attempt to simplify and concentrate, we should be led into complication, and diffuseness, and repetition: and it must be observed that in the present day, we are not so ready to admit of virtues and of principles of action, as was formerly the case; so that artificial arrangements now, to satisfy, must approach to demonstrative evidence, as nearly as it is in the nature of physical investigation so to do; otherwise they will be rejected as the schemes of fancy, rather than admitted as the oracles of truth.

It was under these impressions that the modern compilers of dispensaries adopted the plan of alphabetical arrangement, as being, if not so scientific, certainly less liable to objections of the nature above adduced than any other; and the three writers to whose labors we shall be most indebted in the compilation of the present article, Thomson, Duncan, and Paris, have pursued this method. As Encyclopedists, however, we should not be doing justice to the subject without presenting in outline, at least, the principal schemes which have been proposed on other principles; and we shall therefore in the first place give our readers a general view of those which have been the most entitled to consideration; and at the end of the article we shall mention those writers whom the curious may consult as authorities on the science about which we are now to treat.

We select the schemes of Cullen, Parr, Darwin, and John Murray, for presentation in outline.

The first of these authors, Dr. Cullen, divides the *materia medica* primarily into nutrients, and medicines. Then he assumes that medicinal substances, properly so called, act either on the solids or the fluids; and, with respect to those whose agency is on the solids, he proposes a subdivision into those which influence the solids as dead matter, or the simple solid as it is called in opposition to the vital. Medicines, the action of which is on the simple solid, are astringents, tonics, emollients, and corrosives; those which act on the living solid are stimulants and sedatives, including narcotics, refrigerants, and antispasmodics.

In the second general class of medicines, or those which act upon the fluids, are included those which either produce alteration or evacuation; the medicines which produce change comprise attenuants, inspissants (mechanical or material change), and demulcents, antacids, ant-alkalines, and antiseptics (the changes in these last instances being rather chemical than merely formative).

Then the medicines which produce evacuation are, the errhines, sialagogues, expectorants,

emetics, cathartics, diuretics, diaphoretics, and emmenagogues.

It has, however, been remarked, by a modern writer, that Dr. Cullen's *materia medica* is in some sort inconsistent with his theory of medicine, since the fluids in that theory are supposed always to be acted upon in subordination to the solids, and not primarily. The reader, by turning to our article on MEDICINE, will see that this indeed constitutes one of the main peculiarities of Cullen's system, that it assumes the solid fibre to be the regulator of all changes in the body (see MEDICINE). Cullen's arrangement, however, is by no means a bad one, and it has been adopted by many writers on the subject of medicinal influence.

Dr. Parr, in his Medical Dictionary, proposes the following scheme of classification. He makes four general divisions, viz. into those which act 1st, upon the living solid; 2dly, upon the fluids; 3dly, upon the simple solid; and 4thly, upon extraneous bodies.

Of the first class, his divisions are into, 1st, those which increase motion, including emetics acting upon the stomach; cathartics upon the intestines; diaphoretics upon the extreme vessels; diuretics upon the kidneys; expectorants upon the bronchiæ; errhines upon the glands of the nose; sialagogues upon the salivary glands; emmenagogues upon the womb; stimulants upon the whole body, which last include, cordials (cardiaca); analeptics, attractives (atrahentia), and discutients. 2dly, Those which diminish motion, in which are comprehended the refrigerants and antispasmodics. 3dly, Those which lessen tone, or sedatives. 4thly, Those which increase tone, or tonics.

The second class, or those medicines the agency of which is upon the fluids, comprehends 1st, those which change the crasis of the fluids, which are attenuants, inspissants, and alteratives; and those, 2dly, which correct acrimony, including demulcents, antacids, antalkalines, and antiseptics.

The third class, or those substances which operate upon the simple or dead solid, comprehend emollients, corrosives (erodentia), and astringents.

The fourth are the antipoisonous (alexiteria), the lithontriptic (medicines for calculous concretions), and the anthelmintics (worm medicines).

In defence of this arrangement, Dr. Parr introduces into his Dictionary a few remarks which we shall subjoin.

‘These classes of the *materia medica* are not so numerous as to require what is usually styled a methodus, and, if any thing were sacrificed to the parade of systems by this means, it would be improperly adopted. Whatever may be the merits of the scheme, it has no disadvantages; for the arrangement is exactly such as if the orders were natural and independent; and the clavis limits the intention of the group with peculiar accuracy. The evacuants most nearly related follow each other; and, as no evacuation can take place without the excitement of the vessels as muscular organs (query?), so in the following class stimulantia, where the nervous system is

more generally affected, a general action of the vessels of the whole system usually accompanies (here our author is faulty in his phraseology, and we think his pathology rather questionable). Of the synonymes of stimulants, the two first, should such medicines exist, act more peculiarly on the nervous system; the two last are topical remedies. The distinction between general and topical medicines usually admitted is at least useless, if not injurious; for the most active internal medicines are often powerful topics.

'The next division is also connected with some action of the sanguiferous system, which disappears in the second class. Resolvents are truly refrigerants, for discutients occur in a subsequent part. The medicines which increase tone are included under tonica, and the astringents are referred to those medicines which act on the simple solid. Some certainly act on both, and astringents sometimes appear to be tonics. The medicines which diminish tone, diminish also sensibility and excitability; and we have added as synonymes anodyna and irritantia; those which possess an opposite quality are associated in idea with stimulants.

'We have admitted, with hesitation and reluctance any action of medicines on the fluids, adopting the axiom of the nervous pathologists, that the constitution forms its own fluids. Yet some complaisance is due to many excellent physicians of the Boerhaavian school, and it is at least necessary to point out the medicines which have been employed with these views. The third of the classes of the first division, the alterantia, is vague; yet the actions of medicines in scurvy, in what are styled scorbutic eruptions, in lepra, and in some other cases, must be collected into one group, and it is not easy to find a more proper place. In the second division we clearly perceive the action of demulcents on the throat, the stomach and alimentary canal, the urinary organs, and perhaps the bronchial glands. The antacids and antalkalines are at least useful in the stomachs, and some medicines undoubtedly act chemically as antiseptics.

'The medicines which act on the simple solids afford few subjects of remark. If relaxants are any thing more than emollients, they bear the same reference to the sedantia that the astringents do to the tonics; at least they seem to act through the medium of the simple solid. For these, and the other reasons assigned, the astringents are referred to this place. The last general division contains classes independent in their operation on each other. Lithontriptics may be only antacids, but they are said with confidence to dissolve the calculus. Anthelmintics may be only drastic purgatives, but some at least kill worms.

'It is a common objection,' continues our author, 'to any arrangement, that some medicines possess very different powers, and that their proper places are not easily ascertained. Instances of this kind occur in mercury and steel. Repetition however is unavoidable, and those who seek for the medicine appropriated to any disease, in such catalogues, must find them in each list. The more general authors on the materia medica will treat of them under that head where their powers are most conspicuous, and the medi-

cine will again occur, where, from its preparation or exhibition, peculiar properties are discovered in it.'

To these remarks, Dr. Parr adds some others in explanation of the detail of substances which he presents to his readers; but, as the addition of this list would unnecessarily swell the bulk of our pages, we shall omit both it and the remarks respecting it, and proceed to a sketch of Dr. Darwin's arrangement.

This very ingenious but rather eccentric philosopher proposes to include in the materia medica all those substances which may contribute to the restoration of health. These, he says, may be conveniently distributed under seven articles, according to the diversity of their operations.

1. *Nutrientia*, or those things which preserve in their natural state the due exertions of all the irritative motions.

2. *Incitantia*, or those things which increase the exertions of all the irritative motions.

3. *Secernentia*, or those things which increase the irritative motions which constitute secretion.

4. *Sorbentia*, or those things which increase the irritative motions which constitute absorption.

5. *Invertentia*, or those things which invert the natural order of the successive irritative motions.

6. *Revertentia*, or those things which restore the natural order of the inverted irritative motions.

7. *Torpentia*, those things which diminish the exertions of all the irritative motions.

In the first class, or nutrients, he presents the following catalogue:—

I. 1. Venison, beef, mutton, hare, goose, duck, woodcock, snipe, moor-gauze.

2. Oysters, lobsters, crabs, shrimps, mushrooms, eel, tench, barbolt, smelt, turbot, sole, turtle.

3. Lamb, veal, sucking pigs.

4. Turkey, partridge, pheasant, fowl, eggs.

5. Pike, perch, gudgeon, trout, grayling.

II. Milk, cream, butter, butter-milk, whey, cheese.

III. Wheat, barley, oats, peas, potatoes, turnips, carrots, cabbage, asparagus, artichoke, spinach, beet, apple, pear, plum, apricot, nectarine, peach, strawberry, grape, orange, melon, cucumber, dried figs, raisins, sugar, honey, with a great variety of other roots, seeds, leaves, and fruits.

IV. Water, river water, spring water, calcareous earth.

V. Air, oxygen, azote, carbonic acid gas.

VI. Nutritive baths and clysters, transfusion of blood.

VII. Condiments.

In the above succession, Dr. Darwin means to point out the progressive degree of nutrient power possessed by different substances; he does not, however, appear to be always correct in his notions: indeed the nutritive quality of substances can scarcely be judged of in the abstract, so much depending upon the individual, and upon the time, place, and circumstances under which food is taken. Our readers will perhaps say that, in thus including the nutrientia, we have wandered from our intention of limiting the present article to medicinal substances, but we could not have

presented an unbroken view of Darwin's classification without so doing.

The class of excitants (incitantia) contains the following catalogue :

I. *Papaver somniferum* ; poppy; opium.

Alcohol, wine, beer, cyder.

Prunus lauro-cerasus ; laurel, distilled water from the leaves.

Prunus cerasus ; black cherry, distilled water from the kernel.

Nicotiana tabacum ; tobacco, the essential oil, decoction of the leaf.

Atropa belladonna ; deadly nightshade, the berries.

Datura stramonium ; thorn apple, the fruit boiled in milk.

Hyoscyamus reticulatus ; henbane, the seeds and leaves.

Cynoglossum ; hound's tongue.

Menispermum, cocculus ; Indian berry.

Amygdalus amarus ; bitter almond.

Cicuta ; hemlock. *Conium maculatum* ?

Strychnos nux vomica ?

Delphinium stavisagria ?

II. Externally, heat ; electricity.

III. Ether, essential oils.

IV. Oxygen gas.

V. Passions of love, joy, anger.

VI. Labor, play, agitation, friction.

The third class, secernents, comprise the following :

I. Diaphoretics.

1. *Amomum zinziber*, ginger. *Caryophyllus aromaticus*, cloves. *Piper indicum*, pepper. *Capsicum*. *Cardamomum*. *Pimento*, myrtus pimenta. *Canella alba*. *Serpentaria virginia*, *aristolochia serpentaria* ; *guaiacum*. *Sassafras laurus* ; *sassafras*. *Opium*. *Wine*.

2. Essential oils of cinnamon, *laurus cinnamomum*. *Nutmeg*, *myristica moschata*. *Cloves*, *caryophyllus aromaticus*. *Mint*, *mentha*. *Camphor*, *laurus camphora*. *Ether*.

3. Volatile salts, as of ammoniac and of hartshorn. *Sal cornu cervi*.

4. Neutral salts, as those with vegetable acid ; or with marine acid, as common salt. *Hallex*, red-herring anchovy.

5. Preparations of antimony, as emetic tartar, *antimonium tartarizatum*, wine of antimony. *James's powder*.

6. External applications. *Blisters*, warm-baths, warm air. *Exercise*. *Friction*.

7. Cold water with subsequent warmth.

II. Sialagogues. Preparations of mercury, *hydrargyrum*. *Pyrethrum*, *anthemis pyrethrum*, tobacco, cloves, pepper, cowhage, *strizolobium siliqua hirsuta*. *Mastich*, *pistachia lentiscus*.

III. Expectorants.

1. *Squill*, *scilla maritima*, garlick, leek, onion, *allium*, *assafetida*, *ferula assafetida*, gum ammoniac, benzoin, tar, *pix liquida* ; balsam of Tolu.

2. Root of seneka, *polygala seneka* ; of elecampane, *inula helenium*.

3. Marsh mallow, *althaea* ; coltsfoot, *tussilago farfara* ; gum arabic, *mimosa nilotica* ; gum tragacanth, *astragalus tragacantha*. Decoction of barley, *hordeum distichon*. Expressed oils. *Spermaceti*, soap. Extract of liquorice, *glycyrrhiza glabra*. Sugar. Honey.

4. Externally blisters. Oil. Warm bath.

IV. Mild diuretics.

1. Nitre, kali acetatum, other neutral salts.

2. Fixed alkali, soap, calcined egg shells.

3. Turpentine, balsam of Copaiva. Resin. Olibanum.

4. Asparagus, garlic, wild daucus. Parsley, opium. Fennel, feniculum, *pareria brava*, *cis-sampelos*?

5. Externally cold air, cold water.

6. Alcohol. Tincture of Cantharides. Opium.

V. Mild cathartics.

1. Sweet subacid fruits. Prunes, *prunus domestica*, *Cassia fistula*. Tamarinds, crystals of tartar, unrefined sugar. Manna. Honey.

2. Whey of milk, bile of animals.

3. Neutral salts, as Glauber's salts, vitriolated tartar, sea water, *magnesia alba*, soap.

4. Gum guaiacum, balsam of Peru. *Oleum ricini*, castor oil, oil of almonds, oil of olives, sulphur.

5. Senna, cassia senna, jalap, aloe, rhubarb, *rheum palmatum*.

6. Calomel. Emetic tartar, *antimonium tartarizatum*.

VI. Secretion of mucus of the bladder is increased by cantharides, by spirit of turpentine ? Phosphorus?

VII. Secretion of mucus of the rectum is increased by aloe internally, by various clysters and suppositories externally.

VIII. Secretion of subcutaneous mucus is increased by blisters of cantharides, by application of a thin slice of the fresh root of white briony, by sinapisms, by root of horse-radish, *cochlearia armoracia*. Volatile alkali.

IX. Mild errhines. *Marjoram*. *Origanum*. *Marum*, tobacco.

X. Secretion of tears is increased by vapor of sliced onion, of volatile alkali. By pity, or ideas of hopeless distress.

XI. Secretion of sensorial power in the brain is probably increased by opium, by wine, and perhaps by oxygen gas added to the common air of respiration.

The fourth class, or sorbentia (absorbents).

I. Sorbentia affecting the skin.

1. Acid of vitriol, of sea salt, lemons, sloes, *prunus spinosa*, crabs, pyrus, quince, *pyrus cydonia*, opium.

2. Externally calx of zinc, of lead, or of mercury.

II. Sorbentia affecting the mucous membranes.

1. Juice of sloes, crabs, Peruvian bark, *cinchona*, opium.

2. Externally blue vitriol.

III. Sorbentia affecting the cellular membrane.

1. Peruvian bark, wormwoods, *artemisia maritima*, *artemisia absinthium* ; worm seed, *artemisia santonicum* ; chamomile, *anthemis nobilis* ; tansey, *tanacetum* ; buckbean, *menyanthes trifoliata* ; centaury, *gentiana centaureum* ; gentian, *gentiana lutea* ; artichoke leaves, *cynara scolymus* ; hop, *humulus lupulus* ; *salix caprea*, *geum urbanum*, *datisca cannabina*.

2. Orange peel, cinnamon, nutmeg, mace.

3. Vomits, squill, digitalis, tobacco

4. Bath of warm air, of steam.

IV. Sorbentia affecting the veins.

1. Water cress, capsicum, *sisymbrium* ; nastur-

tium aquaticum; mustard, sinapis; scurvy grass, cochlearia hortensis; horse-radish, cochlearia armoracia; cuckoo flower, cardamine; dogs' grass, dandelion, leontodon, taraxacon; celery, apium; cabbage, brassica.

2. Chalybeates, bitters and opium, after sufficient evacuation.

3. Externally vinegar, friction, electricity.

V. Sorbentia affecting the intestines.

1. Rhubarb, rheum palmatum; oak galls, gallæ quercinæ; tormentilla erecta, cinque foil, potentilla, red roses, uva ursi, simarouba.

2. Logwood, hæmatoxylum campechianum, succus acaciæ; dragons' blood, terra japonica, mimosa catechu.

3. Alum, earth of alum, armenian bole; chalk, creta; crabs' claws, chelæ cancerum; white clay, cimolia; calcined hartshorn, cornu cervi calcinatum, bone ashes.

VI. Sorbentia affecting the liver, stomach, and other viscera. Rust of iron, filings of iron, salt of steel, sal martis, blue vitriol, white vitriol, calomel, emetic tartar, sugar of lead, white arsenic.

VII. Sorbentia affecting venereal ulcers. Mercury dissolved or corroded by the following acids:

1. Dissolved in vitriolic acid, called turpith mineral, or hydrargyrus vitriolatus.

2. Dissolved in nitrous acid, called hydrargyrus nitratus ruber.

3. Dissolved in muriatic acid, mercurius corrosivus sublimatus, or hydrargyrus muriatus.

4. Corroded by muriatic acid. Calomel.

5. Precipitated from muriatic acid, mercurius precipitatus albus, calx hydrargyri alba.

6. Corroded by carbonic acid? The black powder on crude mercury.

7. Calcined or united with oxygen.

8. United with animal fat, mercurial ointment.

9. United with sulphur. Cinnabar.

10. Partly united with sulphur. Æthiop's mineral.

11. Divided by calcareous earth. Hydrargyrus cum cretâ.

12. Divided by vegetable mucilage, by sugar, by balsams.

VIII. Sorbentia affecting the whole system. Evacuations by venæsection and cathartics, and then the exhibition of opium.

IX. Sorbentia externally applied.

1. Solutions of mercury, lead, zinc, copper, iron, arsenic, or metallic calces applied in dry powder, as cerussa, lapis calaminaris.

2. Bitter vegetables in decoctions and in dry powders, applied externally as Peruvian bark, oak bark, leaves of wormwood, of tansey, chamomile flowers or leaves.

3. Electric sparks, or shocks.

X. Bandage spread with enplastrum e minio, or with carpenters' glue, mixed with one-twentieth part of honey.

XI. Portland's powder, its continued use pernicious, and of hops in beer.

Catalogue of the invertentia (things which invert the natural order of the irritative motions.)

I. Emetics; ipecacuanha, emetic tartar, antimonium tartarizatum; squill, scilla maritima; carduus benedictus, enicis acarna, chamomile,

*anthesis nobilis; white vitriol, vitriolicum zinci; foxglove, digitalis purpurea; clysters of tobacco.

II. Violent cathartics; emetic tartar, squill, buckthorn, rhâmnus catharticus, scammonium, convolvulus scammonia; gamboge, elaterium; colocynth, cucumis colocynthis, veratrum.

III. Violent errhines and sialagogues; turpith mineral, hydrargyrus vitriolatus, asarum europæum, euphorbium, capsicum, veratrum, nauseous smells, nauseous ideas.

IV. Violent diuretics; nitre, squill, seneka, cantharides, alcohol, foxglove, tobacco, anxiety.

V. Cold sudorifics; poisons, fear, approaching death.

Catalogue of revertentia (those things which restore inverted motions).

I. Inverted motions which attend the hysteric disease are reclaimed 1. By musk, castor. 2. By assafetida galbanum, sagapenum, ammoniacum, valerian. 3. Essential oils of cinnamon, nutmeg, cloves, infusion of pennyroyal, mentha, pulegium, peppermint, mentha piperita, ether, camphor. 4. Spirit of hartshorn, oleum animale, sponge burnt to charcoal, black snuffs of candles, which consist principally of animal charcoal, wood, soot, oil of amber. 5. The incitantia, as opium, alcohol, vinegar. 6. Externally the smoke of burnt feathers, oil of amber, volatile salt applied to the nostrils, blisters, sinapisms.

II. Inverted motions of the stomach are reclaimed by opium, alcohol, blisters, crude mercury, sinapisms, camphor, and opium externally, clysters with assafetida.

III. Inverted motions of the intestinal lymphatics are reclaimed by mucilaginous diluents, and by intestinal sorbentia, as rhubarb, logwood, calcined hartshorn, Armenian bole; and lastly by incitantia, as opium.

IV. Inverted motions of the urinary lymphatics are reclaimed by cantharides, turpentine, resin, the sorbentia, and opium with calcareous earth of alum, by oil externally, warm bath.

V. Inverted motions of the intestinal canal are reclaimed by calomel, aloe, crude mercury, blisters, warm bath, clysters with assafetida, clysters of iced water? or of spring water further cooled by salt dissolved in water contained in an exterior vessel? Where there exists an intromission of the bowels in children, could the patient be held up for a time by the feet with his head downwards, or be laid with his body on an inclined plane with his head downwards, and crude mercury be injected as a clyster to the quantity of two or three pounds?

Catalogue of torpentia (those things which diminish the exertion of the irritative motions):

1. Venæsection, Arteriotomy.

2. Cold water, cold air, respiration of air with less oxygen.

3. Vegetable mucilages.

a. Seeds.—Barley, oats, rice, young peas, flax, cucumber, melon, &c.

b. Gums.—Arabic, tragacanth, Senegal, of cherry trees.

c. Roots.—Turnip, potatoe, althæa, orchis, snow drop.

d. Herbs.—Spinach, brocoli, mercury.

4. Vegetable acids, lemon, orange, currants, gooseberries, apple, grape, &c.

5. Animal mucus, hartshorn jelly, veal broth, chicken water, oil? fat? cream?
6. Mineral acids of vitriol, nitre, sea-salt.
7. Silence, darkness.
8. Invertientia in small doses, nitre, emetic tartar, ipecacuanha given so as to induce nausea.
9. Antacids.—Soap, tin, alkalies, earths.
10. Medicines preventive of fermentation, acid of vitriol.
11. Anthelmintics.—Indian pink, tin, iron, cowhage, amalgama, smoke of tobacco.
12. Lithontriptics, lixiv. saponarium, aqua calcis, fixable air.
13. Externally, warm bath and poultices, oil, fat, wax, plasters, oiled silk, carbonic acid gas on cancers, and other ulcers.

We have thus subjoined the articles from Dr. Darwin, although we omitted them in the two former instances; and we have done so, partly because they in some measure illustrate the views which Dr. Darwin took of medicinal action, to which we shall shortly have to refer in a more extensive enquiry into the respective medical theories that have been propounded. (See MEDICINE). It will be observed too, by those conversant with the names of drugs, that we have copied our author literally without making the changes according to reformed nomenclature, as it has been thought better upon the whole to give an entire unaltered transcript of the Dr.'s rather extraordinary lists of simple and combined substances and powers; the Linnæan names it will be seen for the most part, but not invariably, succeed to the popular ones of the simples.

We shall now give Dr. J. Murray's classification, the principles of which have something in common with those of Dr. Darwin, inasmuch as it assumes that medicines in general operate by stimulating the living fibre, or exciting it to motion, not by altering directly the state of the living power.

In explaining the operations of medicine, says Dr. Murray, and classing them according to those operations, it is to be regarded as a first principle that they act only on the living body. The presence of life is accompanied with peculiar properties, and with modes of action inapplicable on mere mechanical or chemical principles. Substances acting on the living system no doubt produce effects referrible to these; but the changes they produce are always so far modified as to be peculiar in themselves, and regulated by laws exclusively belonging to organised matter.

The proposition that medicines operate by stimulating the living fibre or exciting it to motion has even been stated as universal, and was received as an axiom in a system (Brown's system), superior, perhaps, to any in conveying just and precise ideas on the nature of life, and the affections to which it is subject. Medicines, in common with all external agents, are, according to this system, incapable of directly altering the state of the vital power; they can only excite the parts possessed of that power to action, and, however diversified their effects may appear to be, such diversities are to be referred merely to the different degrees of force in which they

exert the general stimulant power they possess.

This proposition, however, cannot be received in an unlimited sense. From the exhibition of different medicines very different effects are produced, which cannot be satisfactorily explained from the cause assigned—the difference in the degree of stimulant operation. They differ in kind so far, that, even in the greater number of cases, one remedy cannot by any management of dose or administration be made to produce the effects which result from the action of another.

It is therefore necessary to admit some modifications of the general principles above stated and the following are perhaps sufficient to afford grounds for explaining the operation of remedies, and for establishing a classification of them sufficiently just and comprehensive.

1st. Stimulants are not to be regarded as differing merely in the degree of stimulant operation which they exert. An important distinction exists between them, as they are more or less diffusible and permanent in their action. A stimulus is termed diffusible, which, whenever it is applied, or at least in a very short time after, extends its action over the whole system, and quickly produces its full exciting effect. A diffusible stimulus is generally also transient in its action; in other words the effect, though soon produced, quickly ceases. There are others, on the contrary, which, though equally powerful stimulants, are slow and permanent. These varieties, which are sufficiently established, serve to explain the differences in the powers of a number of the most important medicines; and they lay the foundation for the distinction of two great classes narcotics and tonics, with their subordinate division of antispasmodics and astringents, both consisting of powerful stimulants; the one diffusible and transient, the other slow and permanent in their operation.

2d. There is a difference between stimulants, in their actions being directed to particular parts. Some, when received into the stomach, quickly act upon the general system; others have their action confined to the stomach itself, or at least any further stimulant effect they may occasion is slow and inconsiderable; while a third class consists of those which operate on one part, often without producing any sensible effect on the stomach or general system. Some thus act on the intestinal canal; others on the kidneys, bladder, vessels of the skin, and other parts; the affection they excite in these being the consequence, not of any stimulant operation equally extended over every part, but of one more particularly determined. This difference in the action of stimuli is the principal foundation of the distinctions of medicine into particular classes. Cathartics, for instance, are those medicines, which as stimuli act peculiarly on the intestinal canal; diuretics those which act on the secreting vessels of the kidneys; emmenagogues those which act on the uterine system; diaphoretics those which exert a stimulant action on the vessels of the skin. With these operations, medicines, at the same time, act more or less as general stimulants, by which each individual belonging to any class is thus rendered capable of producing peculiar effects; and many of them by a peculiarity of constitution

tion in the patient, or from the mode in which they are administered, frequently act on more than one part of the system, by which their effects are still further diversified. Medicines, when thus determined to particular parts, are sometimes conveyed to these parts in the course of the circulation; more generally their action is extended from the stomach or part to which they are applied by means of the nervous system.

3d. Medicines, besides acting as stimuli, sometimes occasion mechanical or chemical changes in the state of the fluids or solids, by which their action is more or less diversified. These operations of medicines were formerly supposed to be more extensive than they really are; and many absurd explanations were deduced from the supposed changes which the solids and fluids underwent in disease. Though these notions are now exploded, it must still be admitted that changes of this kind take place in the living system. Chemical changes in particular, there is reason to believe, very frequently modify the actions of remedies; and some very obvious operations of this kind, as well as others of a mechanical nature, serve as distinctions for establishing particular classes.

These observations point out the principles on which the arrangement of the articles of the materia medica, from their medicinal operations, may be established.

Those stimulants which exert a general action on the system may first be considered; of these there are two well marked subdivisions, the diffusible and the permanent; the former corresponding to the usual classes of narcotics and antispasmodics, the latter including likewise two classes, tonics and astringents. In these there is a gradual transition passing into the one from the other, from the most diffusible and least durable stimulus to the one most slow and permanent in its action.

The next general division is that comprising local stimulants; such are the classes of emetics, cathartics, emmenagogues, diuretics, diaphoretics, expectorants, sialagogues, errhines, and epispastics. These all occasion evacuation of one kind or other, and their effects are in general to be ascribed, not to any operation exerted on the whole system, but to changes of action induced in particular parts.

After these, those few medicines may be considered whose action is merely mechanical or chemical. To the former belong diluents, demulcents, and emollients. Anthelmintics may perhaps be referred with propriety to the same division. To the latter, or those which act chemically, belong antacids, or absorbents, lithontriptics, escharotics, and perhaps refrigerants.

Under these classes (says Dr. Murray) may be comprehended all those substances capable of producing salutary changes in the human system. Several classes are indeed excluded which have sometimes been admitted; but these have been rejected, either as not being sufficiently precise or comprehensive, or as being established only on erroneous theory.

The subdivisions of these classes may sometimes be established on the natural affinity existing among the substances arranged under

each; on their chemical composition; their resemblance in sensible qualities; or, lastly, on distinctions in their medicinal virtues, more minute than those which form the characters of the class. In different classes one of these methods will frequently be found preferable to any of the others.

After these preliminary remarks, Dr. Murray presents his readers with the following table of classification:

A. GENERAL STIMULANTS.

- a. Diffusible { Narcotics.
- { Antispasmodics
- b. Permanent { Tonics.
- { Astringents.

B. LOCAL STIMULANTS.

- Emetics.
- Cathartics.
- Emmenagogues.
- Diuretics.
- Diaphoretics.
- Expectorants.
- Sialagogues.
- Errhines.
- Epispastics.

C. CHEMICAL REMEDIES.

- Refrigerants.
- Antacids.
- Lithontriptics.
- Escharotics.

D. MECHANICAL REMEDIES.

- Anthelmintics.
- Demulcents.
- Diluents.
- Emollients.

As, in the alphabetical arrangement which we propose to adopt, we shall have to state the medicinal qualities of the medicines enumerated, under the presumption of the reader's knowledge of the signification of such virtue, it may be necessary to give a slight preliminary definition of the terms made use of to designate these properties: and, in so doing, we may as well pursue the order of Dr. Murray, presented in the above tabular view.

Narcotics then, without going into any theory in respect to their mode of operating, may be defined those substances or powers which tend to the production of sleep.

Antispasmodics check or subdue that irregular action in the muscular fibre which is termed spasm, or the modification of it named convulsion.

Tonics are those substances which add to the tone or strength of the body.

Astringents check discharges.

Emetics excite vomiting.

Cathartics increase the evacuation from the intestines.

Emmenagogues promote the menstrual discharge. (Note. Some doubt whether any medicines possess this property specifically or directly, that is, independently of their stimulating, or tonic, or relaxing, or cathartic influence).

Diuretics are those medicines which promote the urinary discharges.

Diaphoretics increase the exhalations from the surface of the body.

Expectorants promote the discharge of mucus or pus, or other substances, from the trachea and lungs. (Note. Respecting these also, as possessing specific or direct powers, doubts have been expressed.)

Sialogogues increase the quantity of the salivary discharge.

Errhines occasion an increase of discharge from the nostrils.

Epispastics excite an inflammation on the skin which is followed by a blister.

Refrigerants reduce the heat of the body.

Antacids obviate acidity in the first passages.

Lithontriptics break down calculous concretions, or prevent their formation.

Escharotics erode the skin.

Anthelmintics expel or destroy worms.

Demulcents sheath from acrimony.

Dilutents increase the quantity of fluid in the body.

Emollients soften and take off rigidity.

Such is the simplest and most concise definition which we can give, of the terms used to indicate medicinal effects—it will be seen that almost every one of them involves some theory in regard to its *modus agendi*. The extracts which we have given from Parr, Darwin, and Murray, in some measure apply to this subject, which will be resumed and further discussed in the article MEDICINE.

We now proceed to present our readers with an alphabetical *materia medica*, as adopted by the latest writers on the subject in this country, Duncan, Paris, and Thomson. It will be observed, that our article is principally abridged from the first and the last of these writers. The botanical characters of the plants we purposely omit, as they will be found elsewhere, and we have wished to study brevity and avoid repetition.

ABETIS RESINA. For an account of the resin from the different species of fir, see **PINUS**.

ABSINTHIUM. See **ARTEMISIA**.

ACACIA (vera). Gum arabic.

History. The tree which yields this gum is a native of Africa. All the species, indeed, of the mimosa yield it, as well as some other trees in common with the mimosa nilotica. The gum exudes from the bark of the trunk, and in about a fortnight it thickens into oval masses about the size of a pigeon's egg. It is imported from Barbary and Morocco, in large casks. The Senegal gum, which is not unfrequently mixed with, and substituted for, the Barbary gum, is obtained from various trees, but principally from the verreck, which yields a white gum, and the other, nebuel, which affords a red gum. The Arabic gum is dry and brittle; the Senegal is more clammy and tenacious, more, indeed, like the gum which exudes from our plum trees.

Qualities. It is dry, brittle, and nearly tasteless. It is highly nutritious. We are told that for a length of time together the Moors live almost exclusively upon it; and it is calculated that six ounces of it will suffice for the support of a man during twenty-four hours.

Medical properties. It is demulcent, and

therefore used to lubricate abraded surfaces, and abate the irritation connected with inflamed parts. Dose ʒj to 3j.

ACACIA (catechu). Terra Japonica.

History. The tree producing the catechu extract is a native of Hindostan. The extract is of two kinds; one imported from Bengal, the other from Bombay. When first introduced into Europe it was called Terra Japonica. It is a decoction of the internal colored part of the wood, evaporated and dried by exposure to the sun.

Qualities. It is of a chocolate color; that from Bombay is of a reddish-brown. It is of an astringent taste; the extract from Bengal being more austere and bitter than the other.

Medical properties. Astringent. It is an excellent medicine in cases of discharges produced by debility. Dr. Paris and Dr. Thomson recommend it as a dentrifice; the first proposes its combination with an equal quantity of powder of bark and a fourth of powder of myrrh. Dr. Thomson orders its combination with three parts of finely powdered charcoal, as a tooth powder. Dose 10 grs to 3ʒ.

ACTOSA and ACTOSELLA. See **RUMEX** and **OXALIS**.

ACETUM (vinegar).

History. Vinegar is well known as the product of what is called the acetous fermentation. Vinegar in France and Italy is principally produced from the lees of wine. With us malt is the material commonly employed in its manufacture.

Qualities. According to the material from which it is formed it is of a paler or a deeper color; that from malt being deeper than that from the lees of wine. It has a penetrating odor and acid taste.

Medical properties. Refrigerant and moderately astringent. It is powerfully anti-narcotic. Diluted with water it forms an excellent drink in fever, when the heat is high and the powers of the system low. When given as an antidote to opium, or other narcotics, the stomach should be first emptied by an emetic. Dose 1 f. ʒj to 4.

For acetic acid, whether procured from vinegar or other sources, see **PHARMACY** and **CHEMISTRY**. For citric acid, also, see **PHARMACY**; and also consult **PHARMACY** and **CHEMISTRY** for the mineral acids, acid sulphuricum, acid muriaticum, and acidum nitricum, with their dilutions.

ACCIPENSER (rathenus). Small sturgeon (huso). The beluga or great sturgeon, or isinglass fish. See **ICHTHYOLOGIA**.

ACONITUM (neomontanum). Aconite, monkshood, wolfsbane.

History. This is a perennial plant, found native in the mountainous parts of Germany. It is cultivated in our gardens. Its time of flowering is July, at which time the leaves ought to be gathered for medicinal purposes.

Qualities. Aconite leaves have not much smell, but when chewed occasion a painful acrid sensation in the mouth. The whole plant is poisonous. The leaves lose much of their acrimonious quality by drying.

Medical properties. Aconite is narcotic, dia-

phoretic, and, for the most part, diuretic. It has been employed in chronic rheumatism, syphilitic affections, schirrus, &c. Stoerk, of Vienna, introduced it into practice. Dose 1 gr. to 5.

ACORUS (calamus). Sweet flag.

History. This is a perennial plant, growing in marshy places and rivulets. It is plentiful about Norwich, and in many of the marshy commons near London. That used in medicine has been mostly supplied from the Levant.

Qualities. The root, which is the part employed, has a warm bitterish taste, and an aromatic odor. Both its smell and taste are improved by drying.

Medical properties. Aromatic and tonic. It has been employed in intermittent fevers. Dr. Thomson thinks that its powers are not sufficiently appreciated as a stomachic in cases of dyspepsia. Dose ʒj to ʒj.

ADES (Fat). See CHEMISTRY and PHARMACY.

ÆRUGO. See CUPRUM.

ÆSCULUS (hippocastanum). Horse chestnut.

History. The horse chestnut tree is originally from the north of Asia, but it has been introduced into almost every part of Europe. It flowers in May.

Qualities. Its fruit is principally composed of fecula, and is eaten by forest animals. In times of scarcity it has been used as food by man, but its acrimony should be destroyed by fire when so employed. The bark of the tree is astringent, and slightly aromatic to the taste.

Medical properties. Tonic. It has been employed (the bark of it) as a substitute for the Peruvian bark. Dose ʒj to ʒj.

AGRIMONIA (eupatoria). Agrimony.

History. An indigenous and perennial plant, found about the borders of hedges and fields. It flowers in June and July.

Qualities. An agreeable aromatic odor and bitterish taste.

Medical properties. Tonic and deobstruent, not much employed.

ALCOHOL (ardent spirit). See CHEMISTRY and PHARMACY.

ALLIUM (sativum) Garlic. (Porrum) Leek. (Cepa) Onion.

History. Garlic is a perennial; it grows wild in Sicily, and is cultivated in our gardens. It flowers in July. The leek is a native of Switzerland and flowers in June; it is a biennial. The common onion also flowers in June; it is perennial.

Qualities. The bulbs, especially of these plants, possess an offensive odor, and an acrimonious taste; these principles are the weakest in the common onion.

Medical properties. Garlic is diuretic and stimulant, and expectorant, and anthelmintic; the leek is principally employed as a diuretic, and onion seems to have nearly the same properties with the garlic, but in an inferior degree. Onions are recommended by some in some kinds of gravelly affections, but it is questionable whether they are otherwise useful than as a diuretic. Dose, ʒi to ʒij.

ALOE. (vulgaris) Common or Barbadoes aloes (Spicata, socotrina) socotrine or

spiked, or Cape aloes. (Caballina) fetid aloes.

History. The plant producing the aloes is perennial, and grows in different parts of the south of Europe, Asia, Africa, and America, but the spiked yields the best extract, and this is principally brought from the Cape of Good Hope. The greater part, however, of what are now sold as socotrine aloes are brought, we are told, from Bombay, and are the real hepatic aloes. The leaves of the plant are cut off close to the stem in the preparation of the extract; the juice of them is pressed out, which is boiled, skimmed, and exposed to the sun's heat, so as to get dry. It is preserved in skins, and thus imported. The fetid, or horse, or caballine aloes is only used by farriers.

Qualities. The socotrine extract appears in small pieces, with a glossy varnished surface, and of a reddish-brown color. Its smell is said to resemble myrrh, others compare it to the odor of the russet apple decaying. The Barbadoes aloes is in larger pieces: its odor is much stronger, and has rather a fatty animal character. Its bitter taste, which is intense, is not accompanied with the aroma which characterises the socotrine species.

Medical properties. Strongly cathartic; exerting its action principally on the lower bowel. It is a stimulant purgative, and therefore employed in sluggish habits; it is much used in chlorosis. Aloe however is for the most part employed in combination with other purgatives, which act more mildly, and upon other parts of the intestinal canal. Dose, grs. v. to xv.

ALTHEA (officinalis). Marsh mallow.

History. Perennial and indigenous; found on the banks of rivers and marshes, especially salt marshes. It flowers in June and July.

Qualities. The root of marsh-mallow is without much smell or color, it abounds with mucilage.

Medical properties. Demulcent, employed for the purpose of sheathing from irritation in urinary and bowel, and sometimes in pulmonary and cynanchial affections. Ad libitum.

ALUMEN. (Super sulphas aluminæ et potassæ). Alum.

History. 'It is found native in some places either effloresced on bituminous schistus, as at Göttwig in Austria; or uniting with the soil in volcanic regions, as at Solfatara near Naples, where the only processes requisite for its extraction are lixiviation and evaporation.' But alum is principally obtained from schistose clays, which have iron in their composition. The largest alum mine in this country is said to be at Hurllett, near Paisley.

Qualities. Alum has a sweetish acidulous, and rough or astringent taste. Its form is that of a octohedral crystal, with sides of equilateral triangles. It is without odor.

Medical properties. Astringent, used both externally and internally to check discharges and restrain hæmorrhage. Alum whey is much employed by some in fluor albus. Dose grs. 5 to ʒj.

AMMONIÆ MURIAS. (Sal ammoniac).

History. Found native in the neighbourhood

of volcanoes. It was originally manufactured in Egypt by subliming the root of camel-dung; but it is now principally prepared by mixing muriate of soda with artificially formed sulphate of ammonia and carbonate of lime. The greater part of the sal ammoniac used in London, we are told, is now made in the north of England.

Qualities. Sal ammoniac possesses a bitterish saline taste. Owing to a degree of moist ductility it is not very easily powdered; it is usually formed in cakes of about an inch in thickness, and of an hemispherical form.

Medical properties. Sal ammoniac was formerly in considerable use as an internal remedy against obstructions and viscidities, as they are called by the humoral pathologists. Its present employment is principally external, as a cooling, discutient, and stimulant application. Dose grs. x. to 3℥.

AMMONIACUM. See *Heracleum*.

AMYGDALUS (communis). Dulcis or sativa, sweet almond. Amara, bitter almond.

History. The almond tree originally came from Barbary and Syria. It is cultivated now in the southern parts of Europe, and even in England; but the fruit does not well ripen here. It nearly resembles the peach. There is no apparent variety in the tree which produces the two kinds of kernel.

Qualities. The sweet almond, when the kernel is taken off, is inodorous, and has a bland taste; the bitter almond, by trituration, gives out the odor of the peach; it contains the hydrocyanic acid.

Medical properties. The sweet kind are more in employment as food than as medicine. They are demulcent, and are used in the form of emulsion. Dr. Thomson tells us that, on the ground of the bitter almonds containing the prussic acid, he has been led to employ them both in affections of the lungs and the stomach, and has found them very efficacious; he has also used the emulsion from them in some cutaneous disorders with advantage.

AMYLM. See *Triticum hybernium*.

N. B. As starch is the fecula of wheat, so is sago of the sago tree, one of the various species of palms (the pith). *Tapioca* of the *Jatropha manihot* (the roots). *Salap* of the orchis muscula (the bulbs). *Arrow root* of the maranta arundinacea (the pith). This being the true Indian arrow root; but the most part of what is commonly sold in the shops as arrow root is merely the fecula of potatoes.

AMYRIS (elemifera). Elemi (Gileadensis). Balsam of Gilead.

History. The tree, from which the resin called elemi is procured, grows in Carolina and the Brasil; the resin is obtained by making incisions into the bark; it dries in the sun as it flows from these incisions. The Gilead balsam is obtained from a tree which is a native of Abyssinia, but which is said to have been transplanted into Judea 1730 years before Christ.

Qualities. The elemi smells somewhat like fennel seeds: it is of a pale or yellowish color, semi-transparent, and brittle externally, but more soft and ductile within. Balsam of Gilead has a strong pungent odor resembling turpentine.

It is of a yellowish color, but changes by keeping; its interior is paler than its surface.

Medical properties. Elemi is stimulant, but very rarely used as an internal medicine. The Gilead balsam is scarcely employed at all in this country. In the east it is used as a cosmetic. Dose ʒj. ad 3j.

ANCHUSA (tinctoria). Alkanet.

History. The anchusa tinctoria is a native of the south of Europe; it is sometimes cultivated in our gardens, but the alkanet of commerce principally comes from the neighbourhood of Montpellier.

Qualities. Alkanet root has a bitterish astringent taste. To alcohol, ether, and oils, it imparts a fine red color; to water it yields only a brown color. The coloring principle resides in the bark.

Medical properties. Astringent, but scarcely employed for any other purpose than to give color.

ANETHUM (graveolens), common dill. (Feniculum) sweet fennel.

History. The plant which produces the dill seeds is cultivated in this country, but is a native of Spain and Portugal; it is an annual. The fennel is a biennial plant; both the root and the seeds of this are employed.

Qualities. Dill seeds have an aromatic smell, with rather a pungent aromatic flavor. The roots of the fennel have not much odor, and they are but slightly aromatic to the taste. Fennel seeds are more fragrant, and have a warmer taste.

Medical properties. Dill seeds are carminative; the water from them is exceedingly useful as a vehicle for children's medicines, when an aromatic carminative quality is required. Fennel is very little used, being not at all superior to caraway or anise seed. Dose grs. 10 to ʒj.

ANGELICA (archangelica). Angelica.

History. This plant is umbelliferous and biennial; it is chiefly cultivated in the northern parts of Europe, but has been found wild in Britain. All the parts of the plant, including the roots, are employed.

Qualities. Angelica has a fragrant aromatic smell, which is most concentrated in the roots. From the fresh roots a gum resin exudes when the roots are wounded, which is very strong in the virtues of the plant.

Medical properties. Tonic and aromatic, but very little used. An agreeable sweet-meat is made of the stalks. Dose, 3j. ad 3j.

ANGUSTURA. Angustura, or bonplandia, or cusparia bark.

History. The bonplandia trifoliata which affords the angustura bark grows abundantly in South America. It is an evergreen, and rises to the height of from sixteen to eighteen feet, with leaves of two feet in length.

Qualities. Angustura or cusparia bark is very bitter, pungent to the taste, and slightly aromatic: it breaks with a short and resinous fracture. It has a peculiar odor; when powdered it is yellow.

Medical properties. Stimulant and tonic. It has been used as a substitute for cinchona bark, especially in intermittents. Dose grs. 10 to 3j.

ANISUM. See *Pimpinella anisum*.

ANTHEMIS (nobilis). Chamomile (pyrethrum). Pellitory.

History. The chamomile is indigenous and perennial; it is principally cultivated in physical gardens for medicinal use. The pellitory is a native of Barbary, of the Levant, and of the south of Europe; but is occasionally cultivated in England. It is the root of this plant which is employed. The flowers of the pellitory resemble in form those of the chamomile.

Qualities. The smell and flavor of the chamomile are well known. The taste of the pellitory root is at first scarcely sensible, but in a very short time it occasions a burning sensation in the mouth and fauces.

Medical properties. Chamomile flowers are emetic in a large quantity, but tonic and stomachic in a smaller quantity. They are used externally for fomentations, &c. The pellitory root is chiefly employed as a sialogogue; in tooth ache, &c. Dose ʒj. to 3j.

ANTIMONIUM. Stibium. Antimony. Sulphuret of antimony.

History. Antimony has been met with in its metallic state at Stahlberg in Sweden, and more recently at Allemont in France; but it is most commonly mineralised with sulphur, and in this state of sulphuret it is not an uncommon production of nature. The crude antimony of commerce is the sulphuret separated from its stony parts mechanically and by fusion.

Qualities. It is without any odor, and almost tasteless; its form is that of a large gray mass, which, when broken into, appears striated and metallic. It is insoluble both in water and alcohol.

Medical properties. Sulphuret of antimony is not active unless it meet with an acid solvent in the stomach, when it becomes violent in its operation, so that its effects are extremely uncertain. Its use is now principally confined to veterinary practice.

In the article PHARMACY we shall have to speak of various combinations and preparations of this medicine.

ARBUTUS (uva ursi). Bearberry.

History. This shrub grows wild in the heaths of Scotland, and in the north of Europe; it is an evergreen, with leaves something like the myrtle. The plant must be procured in the autumn.

Qualities. Astringent and bitter, giving its qualities both to water and alcohol.

Medical properties. De Haen first used it in affections of the kidneys and bladder; it is occasionally employed, and perhaps deserves to be more so, in affections of the mucous surfaces which appear in the form of discharges, and in diabetes. Dr. Bourne recommended it in the hectic of phthisis. Dose, ʒj. ad 3j.

ARCTIUM (lappa). Common burdock.

History. An indigenous biennial plant, growing in waste places, and on the road-side; it flowers in July and August. The root and the seeds are the parts used.

Qualities. Burdock root is sweetish, with a small degree of bitterness and astringency; it is without any odor. The seeds of the plant are slightly aromatic.

Medical properties. Diuretic and slightly diaphoretic. Very little used. Dose 3j. to 3ij.

ARGENTUM. Silver.

History. Silver is found in its metallic state but seldom without an alloy of other metals its richest mines that are known are in Mexico and Peru. Its ores are sulphurets, oxides, and salts.

Qualities. When pure it is of a brilliant white, tasteless, and without odor. Its lustre is lost by long exposure to the air.

Medical properties. In its metallic state it has no medicinal powers; combined with nitric acid it is a medicine of much efficacy both internally administered and externally applied. Dose, internally, of the nitrate of silver gr. $\frac{1}{4}$ to ij.

ARISTOLOCHIA (serpentaria). Serpentaria, or snake root.

History. The root of this plant, which is native of North America, is perennial. The plant flowers in May, and its seeds ripen in September.

Qualities. The root dried has an aromatic odor, and a warm pungent bitter taste. Water extracts its qualities.

Medical properties. Stimulant, diaphoretic, and slightly diuretic; occasionally used with advantage in low fevers. Dose grs. 10 to 3ʒ.

ARMORACIA. See *Cochlearia*.

ARNICA (montana). Leopard's bane.

History. A native of the northern parts of Europe, and cultivated in our gardens. It flowers in July; the flowers, root, and whole herb, are employed in medicine.

Qualities. The flowers have a taste slightly bitter and pungent, as have the leaves; the root tastes more acrid. The resinous part of the plant is soluble in alcohol and ether.

Medical properties. Stimulant and slightly diaphoretic. Employed by some in paralysis of long standing. The Germans recommended the root as a substitute for the cinchona bark. Dose grs. 5 to 10.

ARSENICUM. Arsenic.

History. This metal is found native in its metallic state, in the state of sulphuret, oxidised, and acidified. Its color is of a bluish-gray. The white arsenic of commerce, which is an oxide, or, as it has lately been termed, arsenious acid is principally brought into this country from Germany.

Qualities. White oxide of arsenic, or common arsenic, is without smell; it has a sweetish taste, and after a little time it is exceedingly corrosive. It is partly soluble in water.

Medical properties. Tonic, and externally employed as an escharotic. It has been given with much success in intermittent fevers, and in many other affections where debility is conspicuous. Dose gr. $\frac{1}{10}$ to 9ʒ.

ARTEMISIA (abrotanum), southernwood. (Maritima) sea wormwood. (Santonica) worm-seed. (Absinthium) common wormwood.

History. The southernwood is a native of the south of Europe, it is perennial, and commonly cultivated in our gardens. The sea-wormwood is also perennial, and grows wild in salt marshes; it flowers in August. The wormseed plant is a native of Persia and Tartary, but is cultivated

in English gardens; it flowers in September. The common wormwood is indigenous, and flowers in August. The tops and seeds of the plants are the parts principally in use.

Qualities. The odor of southernwood is of well-known fragrant; the plant has a nauseous bitter taste. Water, and more especially alcohol, extract its virtues. The sea wormwood is slightly fragrant; it has a bitterish aromatic taste. The wormseed plant differs but little from the common southernwood; the wormwood is of a stronger odor, which is not so pleasant as the southernwood. Its taste is exceedingly bitter and very nauseous.

Medical properties. Anthelmintic and deobstruent. None of the species are at present much in use. The *santonica* species, as its name imports, has been principally employed as an anthelmintic. Dose, 3℥ to 3j.

ARUM (*maculatum*). Arum, or wake-robin, or cuckoo-pint.

History. A perennial and bulbous-rooted plant, growing under hedges and on bank sides; it flowers in May, and its berries ripen in August.

Qualities. Arum-root is white and without much smell. It occasions, when chewed, a burning heat in the mouth and fauces, and, when the sliced root is applied to the skin, excoriation and vesication are produced.

Medical properties. Stimulant and expectorant. It has been employed in obstinate rheumatism and in sympathetic head-aches. Dose grs. 5 to ʒj.

ASARUM (*Europæum*). Asarabacca.

History. This is a perennial plant, growing in the northern counties of England; it loves moist and shady situations. The leaves and root are employed.

Qualities. The fresh leaves have not much smell, but they have a nauseous, bitter, and slightly aromatic flavor. They give out their qualities to water. The recent root has an aroma which is lost in drying.

Medical properties. The leaves are emetic, cathartic, and diuretic; but they are only used as a stimulatory or errhine in modern practice, and for this purpose a little of the powder is to be snuffed up the nostrils.

ASSAFÆTIDA. See *Ferula assafetida*.

ASPIDIUM (*filix mas*). Male fern.

History. A common plant, growing in shady places, and in woods; it is perennial, and flowers in June and July.

Qualities. Fern root is sweet and mucilaginous to the taste, accompanied by a slight bitter. It is without any odor, at least its smell is very weak.

Medical properties. Astringent; it has been principally used in this country as an anthelmintic. Madam Noufer's celebrated worm specific was principally composed of it. Dose 3i to 3iij.

ASTRALAGUS (*tragacantha*). Tragacanth.

History. The shrub which produces the gum tragacanth is a native of Persia; the gum exudes through the heat of the summer, and is collected by the natives for exportation.

Qualities. The best gum is inodorous, and of a whitish color; it is imported in pieces of a vermiform shape.

Medical properties. Demulcent; it is more viscid than the acacia gum, and therefore better adapted for allaying mucous membrane irritations. Dose 3i to 3ij.

ATROPA (*belladonna*). Deadly nightshade.

History. This is a perennial and indigenous plant; it is cultivated in gardens; it flowers in June, and its berries ripen in September. The plant is named from the beautiful appearance of its berries.

Qualities. The leaves are the parts of the plant that are employed; they are without smell, but have a slightly nauseous and acrid taste. Every part of the plant is highly poisonous; its qualities are given out to water.

Medical properties. Narcotic. It has been used for dilating the pupil of the eye previous to operation. Externally it has been employed for foul ulcers and cancerous sores. Dose, grs. ʒ gradually to 10.

AURANTIUM. Orange. See *Citrus*.

AVENA (*sativa*). Oats.

History. The oat is a well-known annual plant, much cultivated in northern countries, in some of which it constitutes a great part of the common sustenance even of man. The time and mode of its first introduction into Europe seem uncertain.

Qualities. Oats are without much smell; their taste is slightly bitter; they seem to be principally composed of fecula.

Medical properties. Demulcent. Grit or oat-meal gruel is very useful in catarrhs. The oat in this way is also much employed as an enema.

BARYTA. Barytes.

History. This earth is found in its native state combined with carbonic and sulphuric acid. The carbonate of barytes is in the north of Britain, and the sulphate or ponderous spar in Germany.

Qualities. The carbonate of barytes is without smell or taste, but it is poisonous. It is of a dirty white or gray color externally, and is nearly insoluble. The sulphate is also inodorous and without taste, of a color sometimes approaching to yellow or brown, with an intermixture of red and blue.

Medical properties. It is only the muriate of barytes that is used medicinally, and this is but seldom employed. A solution of it in the dose of five or six minims has been administered in scrofula, &c.

BELLADONNA. See *Atropa*.

BENZOINUM. See *Styrac*.

BISMUTHUM. Bismuth.

This metal is only used for the preparation of subnitrate of bismuth, for which see the article PHARMACY.

BISTORTA. See *Polygonum bistorta*.

BITUMEN (*petroleum*). Barbadoes tar, rock oil.

History. Petroleum is a bituminous oil which is called naphtha when unconnected with other ingredients; it flows from rocks of coal formation, and hence its name rock-oil. The term bitumen is made to apply to several inflammable bodies of various degrees of consistency.

Qualities. Naphtha, which by exposure to air becomes petroleum, is of a pale color, inclining to yellow; it is unctuous and very inflammable.

In its state of petrescence it becomes darker, with a less pleasant odor. It is not soluble in water, but soluble in alcohol, ether, and oil.

Medical properties. Stimulant and sudorific, principally employed externally, but very little in use. It has been given in Germany as a remedy for tape-worm.

BOLETUS (ignarius). Agaric. Touchwood.

History. A fungus, growing upon decayed trunks of the oak and ash trees. It should be gathered in August.

Qualities. Inodorous, with a slightly astringent taste.

Medical properties. Styptic, but supposed by some to be only so from its porous sponge-like structure.

BONPLANDIA. See *Angustura* and *Cusparia*.

BOSWELLIA. Olibanum.

History. Dr. Thomson considers with Mr. Colebrooke that the olibanum brought from India is the produce of the *boswellia serrata*, a large tree growing on the Indian mountains. It had been supposed to be the produce of the *Juniperus lycia*. It is a gum resin: the frankincense of the ancients.

Qualities. Olibanum is in the form of transparent little grains, with but little taste, but having a fragrant odor, especially when burnt. Alcohol and ether are its solvents.

Medical properties. Stimulant, diaphoretic, and slightly expectorant. Principally now used as a perfume. Dose, ʒss to ʒi.

BURON (galbanum). A gum resin.

History. The plant which produces the galbanum is a native of Africa; it is perennial. The gum resin flows out of it after incisions made into it.

Qualities. It has a strong odor, and an acrid bitterish taste; it is diffusible, and nearly soluble in water; different parts of it yielding with more or less facility to different media. The part which is insoluble in ether being soluble in water.

Medical properties. Expectorant, antispasmodic, stimulant, and deobstruent. It is in considerable use as an emmenagogue, mixed with other ingredients. Dose ʒss to ʒi.

CAJUPUTUS. See *Melaleuca*.

CALAMUS. See *Acorus*.

CALAMINA. See *Zincum*.

CALUMBA. See *Menispermum*.

CALX. Lime.

History. Lime is scarcely found in nature without some combination. In most of the fossils in which it is met with it exists in the state of carbonate. Chalk is a soft, limestone a hard carbonate of lime.

Qualities. Chalk is well known to be white or whitish, and without smell or taste. Limestone is also inodorous and insipid, but colored according to its varieties.

Medical properties. Antacid, and, applied externally, cooling, and absorbent. Quicklime, that is, lime in which the carbonic acid has been driven off by heat, is escharotic. See *PHARMACY*.

CAMBODIA. See *Stalagmitis*.

CAMPHORA. See *Dryobalanus* and *Laurus*.

CANCER. (Pagurus) Crabs claws. (Astacus) crabstones, vulgarly crab's eyes.

History. The claws of the crab have a crus-

taceous covering, which consists principally of carbonate of lime; the concretions called crabstones or crab's eyes are chiefly made up also of carbonate of lime, and are found in the stomach of the craw-fish at the time when the external covering is changed.

Qualities. The crab-stones are hard and stony, convex on one side and slightly concave on the other; they are of a slightly reddish color; they become soft and transparent when treated with acids.

Medical properties. Merely antacid, like common chalk.

CANELLA (alba). Canella. The bark.

History. A common tree of Jamaica, and other of the West India Islands. The bark is sometimes confounded with that from the wintera aromatica.

Qualities. The quilled canella is paler than the flat kind; the latter is said to be the bark of the older trees. Both manifest an aroma when broken into; this aroma is lost in the watery infusion.

Medical properties. Stimulant, and slightly tonic. Some consider it antiscorbutic. Dose ʒj to ʒi.

CANTHARIS. Spanish fly, or blistering fly.

History. This insect is found on several trees of Europe, particularly in the southern parts, namely, the ash, elder, and white poplar, &c. The largest are imported from Italy, but those from Spain are preferred.

Qualities. The cantharides have an unpleasant odor, and an acrid taste; their properties are given out both to water and alcohol.

Medical properties. Stimulant and diuretic. The tincture of them has been much employed in gleets, and other chronic discharges from mucous surfaces. They are well known as vesicatory of the skin. Camphor and mucilaginous drinks given with them in some measure modify their powerful action on the kidneys. Dose, gr. i to gr. i.

CAPSICUM (annuum).

History. The capsicum is an annual plant, common to both the Indies, and cultivated in our gardens for the beauty of its berries, which are long pendulous pods. What is called Cayenne pepper is a mixture of the powder of the pods of many species of the capsicum.

Qualities. The berry is aromatic in its odor, and exceedingly pungent to the taste. Water, alcohol, and ether, extract its virtues.

Medical properties. Powerfully stimulant. It has lately been much employed as a gargle in malignant sore throats. Dose grs. v. to ʒi.

CARBO LIGNI. Charcoal.

History. Charcoal is charred or burnt wood, as *ivory black* is of bone and ivory shavings. For medical use the charcoal is reduced to a fine powder, and heated in a crucible.

Qualities. When charcoal is quite pure, it is shining and brittle; it is insipid and without odor. It is insoluble both in water and alcohol.

Medical properties. Antiseptic. It is sometimes mixed with poultices in order to correct the gangrenous disposition of old and foul ulcers. It is also used either alone or in combination as a tooth powder. Dose, ʒss to ʒj.

CARDAMINE (*pratensis*). Cuckoo flower, lady's smock.

History. A perennial herbaceous plant, growing in moist meadows and flowering in the spring.

Qualities. The flowers and leaves (the parts employed) are of a pungent, slightly bitter taste.

Medical properties. Flowers diuretic, and stimulant. Leaves antiscorbutic. Very little used. Dose ʒj to 3j.

CARDAMOMUM. See *Matonia*.

CARUM (*carvi*). Caraway, the seeds.

History. The plant producing these seeds is indigenous, biennial, and umbelliferous; it is cultivated in our gardens; in May and June the flowers expand, and the seed ripens in August.

Qualities. Caraway seeds have a warm pungent flavor, and an aromatic smell. The whole virtues of the plant arise in distillation with water.

Medical properties. Carminative and stomachic. They are generally employed to give warmth to purgatives. Dose ʒi to 3j.

CARYOPHYLLUS. See *Eugenia*.

CASCARILLA. See *Croton*.

CASSIA (*fistula*). Cassia. (*Senna*). *Senna*.

History. The Cassia fistula tree is indigenous in Egypt, and of both the Indies. It rises to the height of forty or fifty feet, and has a fruit of a small cylindrical pod. It flowers in June. The tree which produces the common senna of commerce is a native of Upper Egypt; it is an annual plant, and flowers in August. It grows in the form of a shrub.

Qualities. The part used of the cassia fistula is the pulp of the pods, which has a slight odor, and a sweetish taste. It dissolves both in water and alcohol: the watery solution is indeed the most complete. The leaves are the part employed of the senna tree, which have rather a faint smell, with a bitterish, somewhat aromatic taste; they give out their principal virtues to water, when the temperature of the water is raised to boiling.

Medical properties. The pulp of cassia is aperient. It is not at present in much use. Senna leaves are very generally used in medicine, and are actively and speedily cathartic. Dose ʒi to 3j.

CASTOR (*fiber*). The castor, beaver.

History. The beaver is an amphibious quadruped, found in northern latitudes; the castor of commerce, which is the produce of the animal, is found in follicles by the side of its anus.

Qualities. Castor is of a strong odor, and nauseous, bitterish taste. Alcohol and sulphuric ether are its best solvents.

Medical properties. Antispasmodic, and emmenagogue. Dose grs. v. ʒj.

CENTAUREA (*benedicta*). Blessed thistle.

History. This plant is a native of the Grecian Islands, and of Spain; it is cultivated in our gardens. It is an annual, and flowers in June and September, at which time the leaves of the herb should be cut for use.

Qualities. *Carduus benedictus* has a faint unpleasant odor, and an intensely bitter taste. Its virtues are given both to water and alcohol.

Medical properties. Emetic in a strong decoction, and in smaller doses diaphoretic. It has also been used as a stomachic in dyspepsia. But it is now seldom employed. Dose xv. to 3j.

For the smaller *centaury*, see *Chironia*.

CEPHELIS (*ipecacuanha*). Ipecacuan.

History. Perennial, a native of South America. It flowers from December to March, and its berries ripen in May. The Indians knew this plant to possess emetic properties long before their connexion with Europe. The name ipecacuan in the language of South America means vomiting root.

Qualities. Nearly inodorous in the root. Its taste is extremely nauseous and bitter; it is also subacid. It gives out its virtues in different degrees to water and alcohol. Emetine is a name given by the French to an extract by evaporation of the tincture; and on the quantity of this it seems its medicinal virtues depend.

Medical properties.—Emetic in large doses: in smaller ones diaphoretic, expectorant, and stomachic. It is much used as a sudorific in combination with opium and neutral salts, as in the form of Dover's powder, or the compound powder of ipecacuan of the pharmacopoeias. Dose, as an emetic, ʒj to 3i; as an expectorant, &c., gr. i. to iij.

CERA. Wax. (*Flava*) yellow wax. (*Alba*) white wax.

History. The bee produces this useful substance, the elements of which it gathers from the nectaries of plants; but some plants also secrete it ready formed. Hence it is said that wax may be considered both an animal and a vegetable substance. The yellow wax of the shops is prepared immediately from the honey-comb; it is converted into white wax by exposure to the air and sun on an extended surface, and sprinkling the substance with water.

Qualities. Yellow wax has somewhat of the odor of honey; it is without much taste, and is of a bright yellow color. The white wax is perfectly tasteless and inodorous. It is more brittle than the yellow.

Medical properties. The yellow wax is principally used for cerates and ointments. White wax is employed as a demulcent, but its internal administration is not common. Dose ʒj to ʒij.

CERVUS (*elaphus*). The stag or hart. Horns.

History. The stag is a well known animal, principally found in the northern nations. Its horns fall off and are renewed every year. It is in the early months of the year that the shedding takes place. The horns are used medicinally on account of their yielding a large portion of gelatine; otherwise they do not differ from common bone.

Qualities. The shavings of hartshorn are without smell or taste. Water is their best menstruum.

Medical properties. Demulcent. Used much in the formation of jellies.

CERIVISÆ FERMENTUM. Yeast.

History. The scum which collects on the surface of beer during fermentation.

Qualities. A sour resinous smell, and a bitter taste. Added to vegetable matter, containing

sugar, it excites fermentation and evolves carbonic acid gas.

Medical properties. Antiseptic. A few years since it was much employed in low fevers. It is now principally employed externally in the form of poultice to foul ulcers. Dose ʒiʒ.

CETACEUM. Spermaceti. See *Physater*.

CHIRONIA (centaureum). Smaller centaury. Flowering tops.

History. Indigenous and annual, flowering between June and August.

Qualities. The leaves, stalk, and petals, are very bitter: both water and alcohol extract its virtues.

Medical properties. Tonic and antiseptic. Dose ʒj to ʒj.

CINCHONA (lancifolia) pale peruvian bark. (Oblongifolia) red bark. (Cordifolia) yellow bark.

History. The original cinchona of Peru is said to be from the lancifolia, a species of the genus cinchona; it is still preferred in South America to all the other species. The red bark comes from the Andes; and the yellow bark, which is from the heart-leaved cinchona, is a native of the mountains of Loxa and Santa Fé.

Qualities. The taste of the lancifolia bark is bitter; its color is light; it has but little odor; when powdered the quilled form is lighter than that from the flat kind. The red bark has more smell than the pale; its taste, however, is not so bitter, but sharper and more nauseous. The yellow bark is like the pale, in having but little odor; its taste is more bitter, but less sharp and astringent.

Medical properties. Tonic. When first introduced into Europe, principally employed in the cure of intermittent fever; but subsequently its use has been extended to very many diseases, which are marked by debility of fibre. Dose ʒiʒ to ʒij.

CINNAMOMUM. See *Laurus*.

CITRUS (medica). Lemon (aurantium). Seville orange.

History. The lemon-tree is cultivated in the south of Europe, but it came originally from Persia and Assyria. It is an evergreen, and is occasionally cultivated in our gardens, but the fruit does not come to perfection. The orange tree is also a native of the east, but like the lemon, cultivated in the southern parts of Europe. Both the lemon and the orange fruit are imported principally from Spain. The sweet orange which usually goes under the name of the China is a variety of the same species as the Seville orange.

Quality. The juice of the lemon is gratefully acid; it is mucilaginous, and soon spoils. The rind is slightly aromatic and bitter; it gives out its virtues to water and alcohol. The juice of the Seville orange has rather an acid taste; its rind is aromatic, sharp, and bitter. Water extracts its qualities, as does alcohol.

Medical properties. Lemon juice is refrigerant and antiscorbutic. The rind is aromatic. Orange juice is not so agreeable, nor so generally used, as lemon; but the rind is more in use, as an aromatic, in composition. Dose, ʒj ad ʒiʒ.

Coccus (cacti). Cochineal.

History. This is an insect brought from Mexico, New Spain, and some of the West India islands; it feeds on the common Indian fig, and other species of the cactus; it has the appearance of a small berry wrinkled.

Qualities. Cochineal has a mulberry color, and a bitter, rather acrid, taste; it has a faint smell. The coloring matter, which is peculiar to it, is imparted to water and alcohol.

Medical properties. Anodyne? We thus mark it because its virtues are generally doubted by professional men. Dose grs. v. to ʒj.

COCHLEARIA. Scurvy-grass. (Armoracia) Horse-radish root.

History. Scurvy-grass is an annual plant, growing on the sea-shore in several parts of the north of Europe, and cultivated occasionally in our gardens. The horse-radish is also cultivated for use in gardens.

Qualities. Fresh scurvy-grass has a saline acrid taste, and peculiar smell; it imparts its qualities to water and alcohol. Horse-radish has a very pungent odor and taste. Both water and alcohol extract also its qualities.

Medical properties. The supposed virtue of scurvy-grass may be inferred from its name. The horse-radish is stimulant, and slightly diuretic. It has been employed in chronic paralysis. Ad libitum.

Coccus (butyracea). Mackaw tree yielding the palm oil.

History. The mackaw is a species of palm, which is a native of South America. It is the nut or kernel of its fruit which yields the palm oil of commerce.

Qualities. Palm oil has an agreeable smell; it is of the consistence of butter; and, when fresh, has a fine yellow color.

Medical properties. Emollient; only used externally.

COLCHICUM (autumnale). Meadow saffron.

History. Meadow saffron is an indigenous plant, growing in moist meadows, and flowering in the autumn; it is bulbous rooted; for medicinal use it is taken up from June to August.

Qualities. When the bulb is dug up at the commencement of summer it is highly acid; but its qualities greatly depend not only upon the season, but upon the place of its growth.

Medical properties. Diuretic, expectorant, purgative, and narcotic, according to its dose, and the disorder for which it is administered. It has lately been much used for rheumatism and gout. Dose gr. i to iv.

COLOCYNTHIS. See *Cucumis*.

COLOMBA. Calumbo. See *Menispermum*.

CONIUM (maculatum). Hemlock.

History. Hemlock is an umbelliferous biennial plant, growing under hedges, and in shady moist places. It flowers in June and July. Its large and spotted stem distinguishes it from other umbelliferous plants, as well as the shining appearance of its lower leaves.

Qualities. The fresh plant has a very peculiar smell; it has been compared to the urine of a cat; this odor goes considerably off by drying; the virtues of the plant are however retained if the drying be properly effected; and they are imparted to alcohol and ether.

Medical properties. Powerfully narcotic. It has been much used to allay the irritation of scirrhus disorders, and to mitigate morbid sensibility. It is often highly serviceable in the whooping-cough. Dose grs. ij to v.

CONTRAYERVA. See *Dorstenia*.

CONVOLVULUS (scammonia). Scammony. (Jalapa) Jalap.

History. The scammony convolvulus is a native of Syria; the greater part of that which is employed in commerce is from the mountains of Aleppo and Latachia. The root is perennial, and from this the scammony is obtained. The jalapa convolvulus is from South America; it takes its name from Xalappa, a city of Mexico. The root is also perennial, and is the jalap of the shops.

Qualities. Scammony is of a light, rather shining, appearance, with a heavy disagreeable smell, and friable texture. Its taste is rather acrid. The jalap root has a nauseous smell, a pungent taste, and a heavy kind of odor. When powdered it is of a pale brown, while the powder of scammony is of a grayish color.

Medical properties. Scammony is a drastic purge, and jalap is a stimulant cathartic. Both are apt to occasion a griping pain in their action on the bowels, unless counteracted by admixture. Dose ℥j to 3℥.

COPAIFERA (officialinalis). Copaiba balsam.

History. The tree which produces this substance, which is improperly called a balsam, is a native of South America, and of some of the southern islands of the West Indies. The copaiba is procured by incisions made into its trunk.

Qualities. Good copaiba is clear and transparent; it becomes solid, and of a higher color, by exposure to the air. It is insoluble in water, but dissolves entirely in alcohol.

Medical properties. Diuretic, stimulant, and aperient. It is a highly useful medicine in some chronic discharges, and but for its nauseous taste might be used more abundantly. Dose ℥j to 3j.

CORIANDRUM (sativum). Coriander seed.

History. The plant yielding these seeds is a native of Italy, but is found in some parts of this country, particularly at Ipswich. It flowers in June, and its seeds ripen in August.

Qualities. Coriander seeds, when fresh, smell strong and disagreeable; but, by carefully drying, they become more aromatic. Their active principles are not entirely imparted to water, but they are to alcohol.

Medical properties. Carminative and stomachic. Dose, ℥j to 3j.

CORNUA. See *Cervus*.

CRETA. See *Calx*.

CROCUS (sativus). Saffron.

History. A perennial bulbous root, which grows at present wild even in Britain, but it is supposed to have come originally from the east. It is cultivated in great abundance in Essex, and in some parts of Cambridgeshire. It flowers in September. The stigmata of the flowers pressed together are the saffron of commerce.

Qualities. Saffron has a pungent, rather bitter, taste, is of a rich yellow or orange-red color, and a sort of narcotic odor. It yields its color and active principles to water, as well as to alcohol.

Medical properties. Cordial and stimulant. In modern practice it is not much thought of, and scarcely used except in composition. Dose ℥j to 3j.

CROTON (eleutheria). Cascarella, the bark (tigilium). Croton oil.

History. The tree which affords the cascarella bark is a native of the Bahama Islands; it is chiefly (the bark) imported from Eleutheria. The plant yielding the croton oil seeds is from the East Indies.

Qualities. It has a pleasant aromatic kind of smell, and a warm bitterish taste. It very readily burns; and yields, while burning, a grateful odor. Its properties are partially yielded to water, and totally to alcohol. The croton oil is of a pale reddish-brown color; its taste exceedingly acrid. It is soluble in ether and oil of turpentine, only partially in alcohol.

Medical properties. Cascarella bark is carminative and tonic. It is also slightly expectorant, and therefore useful in some affections of the chest, in which the cinchona is objectionable. Croton oil is an exceedingly active cathartic. Dose mʒ to iij.

CUBEBA. See *Piper*.

CUCUMIS (colocynthis).

History. The plant is an annual of the gourd kind; it is a native of Turkey and Nubia, flowering from May till August. It is the medulla or pulp of the fruit which is employed in medicine.

Qualities. When dried it is without smell, but has an extremely nauseous bitter taste. Its virtues are imparted to water, alcohol and water.

Medical properties. Drastic purgative. Dose, grs. ij to v.

CUMINUM (cuminum). Cummin seeds.

History. An umbelliferous annual plant, a native of Egypt, but cultivated in Malta and Sicily. It flowers in June.

Qualities. The seeds have a pungent taste, and rather a strong peculiar smell. Water extracts very little more than their odor; the whole quality of the seed is given out to alcohol.

Medical properties. Carminative. Dose ℥j to 3j.

CUPRUM. Copper.

History. Copper is found native in many parts of the globe, both in its metallic state, and combined with oxygen; the most common ore of copper is the sulphuret: the subacetate, and the sulphate, are the salts which are admitted into the materia medica.

Qualities. Subacetate of copper (verdigris) is without odor; it is at first nearly tasteless, but it leaves a strong metallic flavor: it is of a beautiful color, bluish-green. It is not fully soluble in water. The sulphate of copper (blue vitriol) is also without odor, and it has a very acrid styptic taste; its color is blue; its crystals are semi-transparent. It is more soluble in water than in alcohol.

Medical properties. Verdigris is tonic and emetic. It is principally used externally as an escharotic. Blue vitriol is also emetic; and, when given in small doses, tonic. It is likewise employed as an escharotic. Dose grs. ʒ to v. As an emetic, grs. iv.

CURCUMA (zedoaria). Zedoary root

History. The zedoary grows in Ceylon and

Malabar. It is perennial. It flowers in April and May.

Qualities. Zedoary root smells somewhat like camphor; it has an acrimonious bitter taste. Its active principles are given partly to water, but more fully to alcohol.

Medical properties. Carminative and stomachic. Dose ʒss to ʒj.

CUSPARIA. See *Angustura*.

CYDONIA. See *Pyrus*.

DAPHNE (mezereum). Mezereon.

History. This shrub grows wild in England, and in the north of Europe. It is cultivated in our gardens; and is remarkable from its flowers expanding before the leaves, the former appearing as early as March.

Qualities. The bark of the root and trunk, when chewed, is exceedingly pungent and burning. It yields its virtues to water and vinegar; alcohol is also a solvent of it.

Medical properties. Stimulant and diaphoretic. It has been employed in cutaneous and syphilitic affections of long standing. Dose grs. i. to x.

DATURA (stramonium). Thorn apple.

History. Thorn apple is a native of America; it is an annual plant and now grows even wild in this country. The whole plant excepting the root is medicinally used.

Qualities. The whole plant has a fetid narcotic odor, and a nauseous bitterish taste. Its qualities are given out both to water and to alcohol.

Medical properties. Strongly narcotic. It has lately been much employed in spasmodic asthma. Dose gr. ʒ to i. or gradually more.

DAUCUS (carota). Carrot.

History. The carrot is a biennial plant, growing wild in Britain, and much cultivated in our gardens. The wild plant flowers in June and July.

Qualities. The seeds, especially of the wild carrot, are pungent and warm to the taste, and smell agreeably aromatic. Their essential oil, on which the properties depend, may be separated by distillation with water.

Medical properties. Diuretic and carminative. The root of the cultivated carrot is used principally as a poultice to allay the pain of phagedenic, and correct the factor of foul ulcers. Dose ʒj to ʒj.

DELPHINIUM (staphisagria.) Stavesacre.

History. It is a biennial plant, a native of the south of Europe. It flowers in July and August. The seeds, which are the parts employed, are commonly imported from Italy.

Qualities. Stavesacre seeds are of a blackish color externally, and yellowish within; they have an acrid taste, and a disagreeable smell.

Medical properties. Violently emetic and cathartic, sialagogue, chiefly employed externally as a poison to lice. Dose grs. iii. to x.

DIANTHUS (caryophyllus). Clove-pink.

History. A perennial plant and native of Italy, growing wild in this country and the walls of ruins. When cultivated in our gardens, its varieties are increased into the numerous family of carnations.

Qualities. The odor of the dianthus is fra-

grant, the taste slightly bitter. Water and alcohol extract its qualities.

Medical properties. Supposed formerly to be stimulant to the nervous system, but now only employed to impart color. Dose ʒss to ʒj.

DIGITALIS (purpurea). Foxglove.

History. An indigenous biennial plant, found on bank and road sides, especially where the soil is sandy and dry. It flowers from towards the end of June till the middle of August. The leaves are the parts employed in medicine.

Qualities. Foxglove leaves have a bitter nauseous taste, and, especially when dry, a narcotic smell. Both water and alcohol extract their qualities.

Medical properties. Sedative and diuretic. It has been much used in dropsies, and seems particularly to apply to hydrothorax. We are told in a recently published work (Dr. Uwins on Indigestion, &c), that very small doses may be given with the greatest advantage in children's diseases marked by atrophy, &c. In some maniacal cases it has been employed with much benefit in large doses. Dose gr. i. to iij. or more.

DOLICHOS (pruriens). Cowhage.

History. A climbing perennial plant, a native both of the east and west. It is the hair of the pod which is medicinally used; the pods which come into this country are principally imported from the West Indies.

Qualities. The hairs of the pods fasten upon the fingers when the pod is incautiously handled, and occasion an exceedingly troublesome itching.

Medical properties. Anthelmintic, acting as it appears mechanically. Mr. Chamberlain, we believe, was the first to point out this property of the cowhage. Dose grs. v. to x.

DORSTENIA (contrayerva). Contrayerva root.

History. A perennial and native of Peru, as well as some of the Caribbee Islands.

Qualities. A peculiar kind of aromatic smell proceeds from the root, which has also a warm and rather bitter taste. Drying does not destroy its qualities, which are imparted both to water and to alcohol.

Medical properties. Sudorific and gently stimulant. It is not at present much used excepting domestically. Dose ʒss to ʒj.

DRYOBALANOPS (camphora). Camphor.

History. The camphor of commerce has been thought the produce of the *laurus camphora*, but more recent observation has determined it to be produced by the *dryobalanops camphora*. Dr. Thomson, however, describes the qualities and medical properties of the camphor under the head of *Laurus*, to which we refer.

DULCAMARA. See *Solanum*.

ERYNGIUM (maritimum). Eryngo, sea-holly.

History. This plant is indigenous and perennial; it grows plentifully on the sea-shore, and flowers in July and August.

Qualities. Eryngo has a sweetish taste, it has but little odor; its virtues are imparted to water.

Medical properties. Diuretic; very little used or thought of. Dose ʒij to ʒiij.

EUGENIA (caryophyllata). Clove tree.

History. The clove tree is a native of the Molucca Islands. The parts employed are the buds or unexpanded flowers, which are gathered while they are green and dried in the sun.

Qualities. Cloves, when good, have a strong, peculiar, and grateful smell, an acrid aromatic taste, and a deep brown color. Their odor but not their taste is given to water: alcohol extracts both.

Medical properties. Stimulant and aromatic. Principally employed in composition. Dose grs. v. to 3ß.

EUPHORBIA (Officinorum). Euphorbium.

History. The substance called euphorbium is the concrete juice of a shrubby succulent plant, which is a native of Barbary; the plant is perennial. The euphorbia (*antiquorum*), and *canariensis*, are said to furnish part of the euphorbium which is brought into this country.

Qualities. Euphorbium is in the form of irregular drops or tears, which are without smell, but which give to the tongue a very acrid sensation. Neither water nor alcohol dissolves the whole of their substance and properties. Ether takes up, we are told, six parts in ten, forming an opaline solution.

Medical properties. Powerfully emetic, cathartic, and errhine. Not much used internally.

FARINA. See *Amylum* and *Triticum*.

FERRUM. Iron.

History. One of the most common metallic productions of nature. It is found in its native state combined with other metals and with sulphur, combined with oxygen to the extent of oxidation, and acidified. Its presence is so universally diffused, that it has been described as even a constituent of organic being. Iron is not like the other metals positively poisonous. Metallic and oxidised iron are admitted into the *materia medica*.

Qualities. The filings of iron are generally as obtained from the workshops mixed with copper filings, and other impurities; their appearance is dark and metallic, and their taste astringent; the scales of oxidised iron which are detached by the smith's iron from the surface of the heated metal, are without much taste or smell; when reduced to powder they assume a grayish-black color.

Medical properties. Tonic and anthelmintic. The mere filings have, however, no other than perhaps a mechanical operation, unless operated upon by the acid of the *primæ viæ*; the oxidised scales possess, however, positive chalybeate virtues. Dose grs. v. to ʒj.

FERULA (assafœtida). Assafœtida.

History. The plant which furnishes this substance is perennial, and a native of the south of Persia; the gum resin is procured by cutting transversely the top of the root after the stock has been twisted off. It hardens in the sun.

Qualities. Assafœtida has a strong garlicky smell, and an acrid bitter taste; these qualities it loses much by exposure to air. It is miscible but not properly soluble in water, but alcohol and ether are solvents of it.

Medical properties. Stimulant, antispasmodic, emmenagogue, anthelmintic, and perhaps slightly expectorant. It is in considerable use both

abstractly and in composition. Dose grs. xv. to 3ß.

Ficus (carica). Fig.

History. The fig tree is thought to be originally from the East, but it now grows plentifully in the south of Europe; the figs that are used in this country are principally imported from the Levant.

Qualities. The taste of dried figs is sweet, their color brown. They vary both in taste and external appearance according to the parts from which they are sent.

Medical properties. Aperient and demulcent; their principal medicinal use is external in the way of cataplasm, in which case they are roasted or boiled.

FRAXINUS (ornus). Manna.

History. The ash which produces the manna of commerce is a native of the south of Europe; other species besides the *ornus* produce it, particularly the *rotundifolia*. Manna is partly a natural exudation from the stem of the tree: it concretes into small white tears, and is scraped off for use; but the greatest quantity is procured by incision.

Qualities. Manna has a very sweet taste with a slight mixture of bitterness; its smell is slight but peculiar. It is entirely soluble both in water and alcohol.

Medical properties. Laxative: used principally for children, and combined with other purgatives. Dose 3ß to ʒij.

Fucus (vesiculosus). Bladder wrack.

History. This is a common sea-weed, which is much employed in manufacturing kelp.

Qualities. It has a taste like soda, and a slight but peculiar smell.

Medical properties. Deobstruent, employed in glandular swellings. Dose ʒj to 3j.

GALBANUM. See *Bubon*.

GALLÆ. See *Quercus*.

GENTIANA (lutea). Gentian root.

History. A perennial plant, growing upon the Alps and other mountainous parts. The root is imported into this country principally from Germany.

Qualities. Exceedingly bitter taste, no particular smell. Water, alcohol, and ether extract the virtues of gentian.

Medical properties. Tonic and stomachic. Dose ʒß to 3j.

GEOFFROYA (inermis). Cabbage-tree bark.

History. The tree producing this bark grows in the low savannahs of Jamaica.

Qualities. The bark has a mucilaginous taste and an unpleasant odor.

Medical properties. Anthelmintic, especially used against the lumbrici. Dose ʒj to ʒij.

GRUM (urbanum). Herb bennet, or avens.

History. This plant is indigenous and perennial, it grows wild in shady places, and flowers from May to August.

Qualities. An odor somewhat like cloves, and taste rather aromatic. On the outside the pieces of the root are dark, but they break with a white fracture. Its qualities are yielded to water and alcohol.

Medical properties. Tonic and rather astringent. It has been proposed, by Buckhave, as a substitute for intermittents. Dose 3j to 3ij

GLYCRRHIZA (glabra). Liquorice.

History. A perennial plant, a native of the south of Europe, but extensively cultivated in England. Liquorice root is dug up for use in November, when the plant is three years old.

Qualities. It has a sweetish mucilaginous taste, without any odor. Water is a more complete solvent of it than alcohol.

Medical properties. A mild demulcent; its extract is a well known remedy for common colds. Dose 3℥ to 3j.

GRANATI CORTEX. See *Punica*.

GRATIOLA (officinalis). Hedge hyssop.

History. This plant is perennial, and a native of the south of Europe. It is cultivated in Britain, and gathered for use in July during its flowering.

Qualities. It has no smell, but its taste is exceedingly nauseous and bitter. Water is a better menstruum for it than alcohol.

Medical properties. Drastic purgative, and emetic. Hufeland in a work on scrofula, recommends its use in glandular and visceral affections. Dose ʒ℥ to ʒj.

GUAIACUM (officinale). Guaiac.

History. This tree is a native of some of the West India Islands. The wood, and the resin exuding from it, are the parts used.

Qualities. The taste of the wood is rather bitter; it is without odor; it is of a brownish-yellow color externally, but is internally rather green. The resin, or what is commonly called guaiac, has a greenish color exteriorly, and breaks with a fracture of mixed colors, and vitreous: it has a fragrant smell without much taste. Alcohol is its best solvent.

Medical properties. Stimulant, and diaphoretic. It has been much used in rheumatic and syphilitic affections. Dose ʒ℥ to 3℥.

HÆMATOXYLON (campechianum). Logwood.

History. A native of South America, now very common in Jamaica: it flowers in March and April.

Qualities. Without smell, but having a sweetish, sub-astringent taste. It is possessed of a deep red-color, which it yields both to water and to alcohol.

Medical properties. Slightly astringent and tonic. Dose ʒj to 3j.

HELLEBORUS (niger). Black hellebore, (fetidus) fetid hellebore.

History. The black hellebore was formerly called melampodium. It is a native of Austria and the Appennines, and has been cultivated in our gardens under the name of the Christmas rose. The fetid hellebore is an indigenous plant, common under hedges and in shady places.

Qualities. The fibres of black hellebore roots are about the thickness of a straw, externally black, and of a yellowish-white within. Their smell is disagreeable and taste acid. Their properties are given out both to water and alcohol. The smell of the fetid hellebore, as its name indicates, is disagreeable also, and taste exceedingly acid. It is the leaf of this plant that is employed.

Medical properties. Black hellebore is a drastic purgative; it has been used as an hydragogue, and emmenagogue. Formerly it was

much employed in maniacal and melancholic affections. The fetid hellebore is principally thought of as an anthelmintic. Dose ʒ℥ to 3℥.

HERACLEUM (gummiferum). Ammoniac.

History. The plant which yields the gum ammoniac, is a native of the East Indies, and Africa. There seems to be some uncertainty with respect to its precise character. The juice which exudes spontaneously, or is occasioned to flow by incisions, hardens into a gum which is ammoniac.

Qualities. The taste of ammoniac is a bitter-sweet; its smell is faint, but not unpleasant; it is diffusible through water, which is its best medium for administration. The small masses of which it is composed are yellow exteriorly, but whitish when broken into.

Medical properties. Expectorant, and deobstruent. In large doses purgative and diuretic; as it is stimulating it ought, in general, to be avoided in those affections of the chest, which are attended by active inflammation. Dose ʒ℥ to 3℥.

HIRUDO (medicinalis). Medicinal leech.

History. The species of leech used in medicine is brought principally to the London market from Norfolk; several other counties also supply the markets, and many are imported from France and Portugal. They are collected in spring and autumn.

Qualities. 'The body of the medicinal leech is about three inches long, tapering towards the head, composed of rings, and capable of being very much lengthened and contracted. The color of the back is dark olive.' The belly is pale olive; those imported from the continent 'differ from English leeches in having the belly of one uniform color.' The horse leech differs from the medicinal, in being entirely brown, or only marked with a marginal yellow line. The horse leech is said to cause more pain and irritation in drawing, and is therefore not in much use, excepting during a scarcity of the other species.

Medical properties and uses of the leech are well known.

HORDEUM (distichon). Barley.

History. Barley has been said to be originally a native of Tartary. It is an annual plant, and extensively cultivated.

Qualities. When the husk of the barley is ground off, the pearl barley, as it is called, appears in the form of small white grains, which are without any odor, and of a slightly sweetish taste.

Medical properties. Demulcent and nutrient. Ad libitum.

HUMULUS (lupulus). Hop.

History. Hop is a perennial climbing plant. It is indigenous. The foliicles of the plant are gathered about the middle of September; it is these which are used.

Qualities. Hops have a fragrant odor, rather narcotic, their taste is bitter, aromatic, and astringent.

Medical properties. Narcotic and anodyne. A pillow of hops is often employed to ease the pain of rheumatic and nervous head-ache. Dr. Thomson, and others, are doubtful of its medicinal virtues. ʒ℥ to 3℥.

HYDRARGYRUM. Mercury, quicksilver.

History. Mercury is found in several parts both of the north, and south of Europe, and on the western continent. It is found in its metallic state, combined with sulphur, and oxidised.

Qualities. Mercury when pure and uncombined is without smell or taste; it is of a white color, and always in a state of semifluidity (running) at the common temperature of the atmosphere.

Medical properties. Mercury in its metallic state possesses no medicinal action, excepting that which may be connected with its mechanical properties. We have seen it check stercoraceous vomiting in a case of supposed intus-susception, but its modus operandi is not very evident. In pharmaceutical combination, it is most extensively employed. Dose \mathfrak{z} ij to \mathfrak{z} iv.

HYOSCYAMUS (niger). Henbane.

History. An indigenous and annual plant, which grows abundantly in Britain, by the road side, and flowers in July.

Qualities. Its smell is strong and narcotic; its taste somewhat mucilaginous with a slight degree of acrimony, which qualities are lost considerably by drying. The virtues of henbane are partly extracted by water, but completely by diluted alcohol.

Medical properties. Narcotic. It is used in place of opium, in cases when circumstances forbid the use of the latter. Dose grs. v. to \mathfrak{z} ss.

HYSSOPUS (officinalis). Hyssop.

History. A perennial plant, growing wild in some parts of Germany; cultivated in our gardens, and flowering from June to September.

Qualities. Hyssop leaves have an aromatic smell, and rather a pungent taste. The essential oil on which their qualities depend, rises with water and alcohol.

Medical properties. Stimulant, and tonic, and expectorant; but not much thought of or employed. Dose \mathfrak{z} j to \mathfrak{z} j.

INULA (helenium). Elecampane.

History. Indigenous and perennial, growing in rich moist pastures, and flowering in July and August. It is cultivated in our gardens. The root is the part employed.

Qualities. An aromatic smell slightly fetid, with a glutinous, saponaceous, and alternately aromatic bitter taste. Its virtues are extracted by water, and more completely by alcohol.

Medical properties. Deobstruent and expectorant, by some considered tonic. Dose \mathfrak{z} j to \mathfrak{z} j.

IRIS (florentina). Florentine iris.

History. Grows wild in some parts of the south of Europe, but cultivated in our gardens and flowers in May and June. The root is the part employed, which is principally imported from Leghorn.

Qualities. Taste acrid, and somewhat bitter: when dried, it gives out an agreeable violet odor.

Medical properties. Iris root when fresh is cathartic; the dry root is nearly inert. It is principally employed as a perfume.

JUNIPERUS (sabina). Savine, the leaf: (communis) common juniper, the berry.

History. Savine is an evergreen, from the Levant, but cultivated in our gardens; it flowers

in May and June. Juniper is indigenous growing on heaths and flowering in May.

Qualities. Savine leaf has a strong smell, and a bitter hot taste; its qualities are given both to water and alcohol, as is the juniper which has a bitter taste.

Medical properties. Savine is diaphoretic, anthelmintic, and emmenagogue; perhaps possessing more directly the last mentioned influence than most other substances to which the quality is ascribed. Externally it is applied to warts, &c. The juniper berries are diuretic and cordial: although the berry is principally employed, all parts of the plant possess diuretic qualities. Dose \mathfrak{z} ss to \mathfrak{z} ss.

KINO. See *Pterocarpus*.

KRAMERIA (triandra). Ratanhy root.

History. A native of Peru, flowering principally in October and November. It is the root and the bark of it that are employed.

Qualities. The taste is bitter and astringent, particularly the bark and external parts: its properties are yielded to boiling water. Its coloring part is especially extracted by alcohol.

Medical properties. Powerfully astringent and stomachic. Externally applied it is styptic. Dose \mathfrak{z} ss to \mathfrak{z} j.

LACTUCA (virosa). Strong-scented lettuce. (Sativa) garden lettuce.

History. The strong-scented lettuce, is an indigenous and biennial plant, which grows on banks and among rubbish, and flowers in July and August. The common lettuce is cultivated to a great extent in our gardens.

Qualities. The odor of the strong-scented lettuce is narcotic, its taste bitter. The lactarium which exudes from the garden lettuce when it is cut has likewise a narcotic smell, somewhat like opium.

Medical properties. Lactarium is narcotic, as is also the expressed juice of the strong-scented lettuce. Dose grs. v.

LAURUS. (Cinnamomum) cinnamon tree. (Cassia) cassia tree. (Camphora) camphor. (Nobilis) laurel. (Sassafras) sassafras.

History. The cinnamon tree is a native of Ceylon, but is at present propagated in other parts of the East, and even of the West Indies. The honey cinnamon, the snake cinnamon, the camphor cinnamon, and the cabatte or the bitter astringent cinnamon, are the only four species, from a great many others, the bark of which is officially procured.

The cassia tree is very similar to the cinnamon; its bark is imported principally from China. Both the buds and the bark of this tree are employed.

The species of laurel which yields camphor is a native of Japan, and of North America, but the greater part of the camphor of commerce, comes, as we have already stated, from Dr. Thomson, from the *Dryobalanops* (which see). When procured from the laurus camphora it is obtained by distillation.

The bay tree is a native of the south of Europe, but is cultivated with us. The leaves and the berries are the parts used.

The sassafras comes originally from the southern parts of North America; it is cultivat-

ed for use in Jamaica, and is reared even in our gardens as an ornamental shrub. It flowers in May and June.

Qualities. Cinnamon has a very pleasant smell, and a taste slightly pungent; the last kind is exceedingly thin, and of a light yellow color. Cassia has a fainter odor than cinnamon, and a more pungent taste; it is much thicker than cinnamon, and breaks shorter. Cassia buds more resemble the cinnamon in taste and smell. Cassia and cinnamon yield an essential oil by distillation. Camphor has a peculiar and very penetrating smell, and an unctuous feel. Water suspends, but does not dissolve it; but alcohol, ether, and oils dissolve it. The bay leaves and berries have an aromatic astringent taste. They yield prussic acid by distillation. Sassafras wood, and bark, and root, have a sweetish, aromatic taste, and a somewhat fragrant smell. Water extracts the virtues of sassafras partially, alcohol completely.

Medical properties. Cinnamon is astringent and cordial, and the cassia possesses the same qualities. Camphor is sedative and narcotic; in the first instance, and under some circumstances, slightly stimulant and cordial. The leaves and berries of the bay are narcotic. Dr. Thomson tells us that he has lately employed an infusion of them in impetiginous affections of the surface. Sassafras is stimulating, diaphoretic, and diuretic. Its virtues are, however, somewhat uncertain. Dose of cinnamon grs. v. to ʒj; of camphor grs. v. to 3ʒ; of the bay gr. i. to 3ʒ; sassafras ʒj to 3j.

LAVANDULA (spica). Lavender.

History. Lavender is a native of the south of Europe, but cultivated with us, and flowering from Midsummer to Autumn. The flowers are cut when they begin to blow.

Qualities. The odor of the lavender is agreeable, and the taste pungent and bitterish. Alcohol extracts its virtues completely; the oil is obtained by distillation with water.

Medical properties. Stimulant. The oil, however, of lavender is very little used, excepting in composition. Dose ʒj to 3j.

LEONTODON (taraxacum). Dandelion.

History. A common perennial plant, flowering from April to the latter end of August. The whole of the plant is employed.

Qualities. Dandelion has a bitter taste; it is without much smell. Its virtues are imparted to water more freely than to alcohol.

Medical properties. Diuretic, deobstruent, and slightly aperient. It is not perhaps, in this country, appreciated equal to its merits. We have found it exceedingly serviceable in indolent affections of the liver. Dose 3ʒ to 3j.

LICHEN (islandicus). Lichen. Iceland moss.

History. This species of lichen is very common in Iceland and in the northern parts of Germany; it grows upon heathy lands and upon stones.

Qualities. The taste of Iceland moss is mucilaginous and bitter; its bitterness is yielded to water; and, by boiling, its mucilaginous part is extracted.

Medical properties. Demulcent and tonic. It has been much employed in phthical affections. Dose 3j to ʒij.

The lichen orcella. Orchel, or litmus, or turnsole, which yields the argol of commerce, scarcely deserves to be considered as an article of the materia medica.

LINUM (usitatissimum) common flax. (Catharticum) purging flax.

History. This plant is supposed to have originally come from those parts of Egypt which are inundated annually by the rising of the Nile; it now grows wild in England, and is extensively cultivated. It flowers in July. Most part of the linseed used in commerce comes from the Baltic. The purging flax is an annual indigenous plant which grows in dry meadows, and flowers from June to August.

Qualities. The seeds of the common flax (linseed) are oily, and sweetish to the taste; they are without smell, and of a brown shining color. The purging flax possesses a bitter subacid taste, and is almost without any odor. Water extracts its virtue.

Medical properties. Linseed is emollient and demulcent. Externally, the powder of it is used much in poultices. The purging flax is, as its name implies, cathartic; but it is at present very little appreciated or employed.

LYTHRUM (salicaria). Loosestrife.

History. An indigenous annual plant, growing principally in moist meadows; it flowers from July till September.

Qualities. It is without odor when dried, and has a slightly astringent taste. It yields its virtue to water.

Medical properties. Astringent. Not much employed in this country. Dose 3j.

MAGNESIA. See PHARMACY, and CHEMISTRY.

MALVA (sylvestris). Common mallow.

History. A perennial plant, very common in this country; it grows on waste grounds, by the way side, and among rubbish. It flowers from May to August.

Qualities. Mucilaginous to the taste, and without much smell. Its mucilaginous part, which is its principal one, is given to water.

Medical properties. Demulcent and emollient. Used principally in enemata.

MANGANESEUM. Manganese.

History. A grayish-white brilliant metal, which is principally found native, in a state of black oxide; this oxide is met with abundantly in Devonshire and Cornwall, and at Howth in Ireland.

Qualities. The black oxide of manganese is often crystallised, and then it has a shining appearance; when it is amorphous it is without this appearance. Chlorine is evolved from it by mixing it with muriatic acid.

Medical properties. Only used for evolving oxygen, and diffusing chlorine in rooms, hospitals, &c., in the way of fumigation.

MANNA. See *Fraxinus*.

MARRUBIUM (vulgare). Horehound.

History. An indigenous perennial plant, growing wild on road sides and waste grounds, and flowering in July.

Qualities. Taste bitter; odor aromatic, which odor is a good deal dissipated by drying. The virtues of the plant are given both to water and to alcohol.

Medical properties. Laxative, deobstruent, diuretic, and slightly tonic. It is used by some practitioners in pulmonary affections, and much employed in a candied state as a domestic medicine. Dose ʒj.

MASTICHE. Mastich. See *Pistacea*.

MATONIA (cardamomum). Lesser cardamom.

History. The plant producing the lesser cardamom seeds is a native of India. The seeds are imported into this country from Bengal.

Qualities. The odor of the seeds is aromatic, and their taste of a spicy pungency. Their properties are given to water, but more completely to alcohol and ether.

Medical properties. Carminative and stomachic; chiefly used in composition. Dose ʒj.

MEL. Honey.

History. The nectaries of flowers afford honey, but the bees which collect it seem to impart something to it, although they do not change it into an animal substance; the bee deposits the honey as a secretion from its body in the cells of its honeycomb.

Qualities. The color of honey should be pale; that is the best which is obtained from young bees and flows spontaneously from the comb. It is called virgin honey. The taste of honey is saccharine; it has not much odor.

Medical properties. Laxative, and externally detergent. Dose ʒj to ʒʒ.

MELALEUCA (cajuputi). Cajeput. The oil.

History. The melaleuca leucadendron was generally supposed to furnish the cajeput oil; but it is now considered the produce of a different species. The tree which yields it grows in the Molucca Islands. The oil is obtained by distillation.

Qualities. Cajeput oil is of a greenish color, has a camphoric smell, and is pungent to the taste. It is soluble in alcohol, as are all volatile oils.

Medical properties. Stimulant, antispasmodic, and diaphoretic. It is often used externally to ease the pain of a carious tooth.

MELISSA (officinalis). Balm.

History. Balm is a perennial plant which grows wild on the Alps, and other mountainous situations, and is cultivated in our gardens. It flowers in the latter end of the summer.

Qualities. Balm, when fresh, has a pleasant smell, and a slightly aromatic taste. When distilled with water an essential oil is yielded.

Medical properties. Slightly diuretic; principally now used as an agreeable drink in febrile affections. Dose ʒj.

MENISPERMUM (palmatum). Calumba.

History. The menispermum palmatum of Winslow is supposed to be the tree from which the Calumbo root is procured. It is a native of the south of Africa. The roots are dug up in the month of March. They are imported in transverse sections.

Qualities. Taste very bitter and somewhat acrid. Odor aromatic. Water takes up its qualities, as does alcohol, but proof spirit the most completely. It yields a volatile oil by distillation.

Medical properties. Tonic and stomachic. It is one of the most useful of all the bitters. Dose ʒʒ to ʒʒ.

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MENTHA (viridis) spearmint. (Piperita) pepper-mint. (Pulegium) pennyroyal.

History. Spearmint is an indigenous and perennial plant, growing in marshy places, and flowers in August. Peppermint is also indigenous and perennial, and likewise flowers in August; it grows in moist places. Pennyroyal grows in heathy lands, as well as in moist meadows, and flowers in September.

Qualities. Spearmint has an aromatic odor, and a pungent taste. Both alcohol and water extract its virtues. Peppermint has a warmer and more pungent taste than the spearmint, and has a camphor impregnation. The pennyroyal is more like the spearmint in odor; its taste is also aromatic and slightly camphoric.

Medical properties. The mints are carminative and stomachic. Pennyroyal has been supposed to be emmenagogue. Dose ʒj to ʒj.

MENYANTHE (trifoliata). Buckbean, or marsh trefoil.

History. This is a common plant in marshy situations; it is one of the most beautiful of our indigenous flowers; the flowers appear in June and July.

Qualities. Buckbean leaves have an unpleasant faint smell, and nauseous taste; their properties are yielded to water.

Medical properties. Purgative and diuretic. It has been used in intermittent fever and in rheumatic disorder. Dose ʒj to ʒj.

MEZERON. See *Daphne*.

MOMORDICA (elaterium). Wild cucumber.

History. A native of the south of Europe; it is cultivated in this country, but does not bear our severe winters. The fruit is gathered in September just before it ripens.

Qualities. The juice, which is lodged in the centre of the fruit, and in which it appears that the virtues of the plant reside, is bitter to the taste, but nearly inodorous.

Medical properties. Powerfully cathartic and hydragogue. A most useful medicine in some kinds of dropsies. Dose gr. ʒ to grs. iv.

MORUS (nigra). Mulberry.

History. The mulberry tree is a native of Persia, but it bears the cold of our winters, and its fruit ripens in September.

Qualities. Mulberries are sweet and acidulous; they are without odor, and are of a deep red color.

Medical properties. Laxative and refrigerant. Ad libitum.

MOSCHUS (moschiferus). Musk.

History. The animal from which the musk is obtained is an inhabitant of the mountainous parts of Asia. It is a timid solitary animal living among the rocks, and difficult to be taken. The musk-bag is between the navel and the prepuce; and, in the adult animal, about two drachms of musk in a liquid state are found in it.

Qualities. The odor of musk is quite peculiar, and is exceedingly durable; its taste is rather bitter, and its color of a reddish brown; it is partly soluble in hot water, more easily in alcohol, and still more completely in ether.

Medical properties. Antispasmodic. Dr. Thomson thinks that its use in epilepsy is not

sufficiently appreciated. It has been much employed in obstinate hiccup. Dose, grs. v. to ʒj.

MYRISTICA (moschata). Nutmeg.

History. The substance called nutmeg is the produce of a tree which grows in the Molucca Islands. The spice called mace is the involucre of the nut.

Qualities. The nut has a fragrant odor and an aromatic taste. Its virtues are imparted to alcohol and ether. Mace is more pungent and bitter than the nutmeg itself.

Medical properties. Carminative, and in large doses narcotic. Dose grs. v. to ʒj.

MYROXYLON (peruiferum). Peruvian balsam.

History. The tree which yields the Peruvian balsam grows in the warmest parts of South America. It is called quinquin by the natives. The balsam which exudes after incisions are made in the wood is called white liquid balsam; that which is principally employed in commerce is procured by boiling the twigs of the tree in water.

Qualities. Balsam of Peru has a fragrant odor, and a warm bitterish taste. Ether and alcohol dissolve it, the latter less readily.

Medical properties. Stimulant, tonic, and in some degree expectorant. It is used, as are some of the other balsams, in chronic discharges from mucous membranes. Dose f. 3ʒ to f. 5j.

MYRRHA. Myrrh. A gum resin.

History. It has not been hitherto ascertained from what tree myrrh is obtained. We receive it from the East Indies. It seems to be an exudation from the plant which produces it.

Qualities. Myrrh is in the form of tears, of a reddish yellow color. It has a fragrant peculiar odor and a pungent bitterish taste. It is but partially soluble in water, ether, and alcohol.

Medical properties. Stimulant and expectorant. It has been supposed to be especially excitative of the uterine system, and therefore administered as an emmenagogue. It forms, likewise, an ingredient in the compound iron mixture of the pharmacopœia. Dose ʒiʒ to 3j.

MYRTUS (pimenta).

History. The pimento-tree is a native of the West Indies and South America. It is the fruit of the tree which is medicinally used.

Qualities. Pimenta is aromatic to the taste and of an agreeable smell. It has been called all-spice, from its odor resembling the combination of cinnamon, cloves, and nutmeg.

Medical properties. An aromatic stimulant. But principally employed in medicine as an adjunct in composition. Dose grs. v. to ʒj.

NICOTIANA (tabacum). Tobacco.

History. This is an annual plant; a native of America, but brought into Europe nearly 300 years ago. The leaves are the part of the plant employed.

Qualities. Taste fetid and bitter; the virtues of the plant reside in an essential oil. These virtues are imparted to water by infusion, and to alcohol.

Medical properties. Narcotic and violently purgative, diuretic, and emetic. Its principal use in medicine is as an enema in cases of bowel affection complicated with hernia. Dose, internally, gr. ʒ to grs. v.

OLEA (Europæa). Olive oil.

History. The tree producing this oil is a native of the south of Europe and north of Africa. Its fruit is the olive, which is used at our tables in an unripe state, steeped in salt. The olive oil is procured by expression from the ripe fruit.

Qualities. Good olive oil is of a pale color; it is the lightest of the fixed oils; it will not combine with water, and is but partially soluble in alcohol.

Medical properties. Aperient and demulcent, and occasionally anthelmintic. Dose f. 3ʒ to f. 3j.

ONISCUS (asellus). Millepedes, or slaters.

History. These insects are found on roofs of houses, and under stones in cold moist places. They are killed by the vapor of spirits, and are prepared for use by enclosing them in a canvas bag in the steam of heated alcohol.

Qualities. They have a fetid odor, and a nauseous, but sweetish, taste.

Medical properties. Supposed to be expectorant, and useful in pulmonary affections, but at present very little esteemed.

OPIMUM. See *Papaver*.

OPOPONAX. See *Pastinaca*.

ORIGANUM (vulgare). Common marjoram. (Marjorana). Sweet marjoram.

History. The common marjoram is indigenous and perennial. It grows on chalky soils, and flowers from July to September. The sweet marjoram is a native of Portugal, but is cultivated in our gardens. It also flowers from July to September.

Qualities. The common marjoram has a pungent taste, considerably like thyme. The sweet marjoram is bitterish and aromatic. The marjorams are treated by distillation, in order to procure their oil.

Medical properties. Tonic and emmenagogue, but not much employed. Dose grs. v. to ʒj.

OSTREA (edulus). Oyster, shell.

History. The oyster is a well-known fish which attaches itself generally to shelving rocks, but is placed artificially in beds near the seashore. The shells are the only parts used officinally.

Qualities. They are composed (the shells), of carbonate of lime and a membranous substance.

Medical properties. Antacid; but, as they do not differ from other lime, their retention is unnecessary. Dose 3i.

Ovis (aries). Sheep. (Fat of mutton).

History. The sheep is a very well-known animal. It does not live at furthest beyond fourteen years. It delights in dry and warm pastures, and is subject to diseases when exposed to damp.

Qualities. Mutton fat, or suet, is not very dissimilar to other fat; it yields, however, oleic and margaritic acid.

Medical properties. Emollient. It is principally employed to give consistency to ointments and plasters.

OVUM. See *Phasianus*.

OXALIS (acetosella). Wood sorrel leaves.

History. This small perennial plant grows wild in our woods and meadows; it flowers in April and May.

Qualities. Sorrel has a pleasant acidulous taste, and is without odor. The crystals ob-

ned from its expressed juice are called essen-
salt of lemons.

Medical properties. Refrigerant and antiseptic.
libitum.

PAPAYER (somniferum). White poppy, which
lds opium. (Rheas). Red, or wild, poppy.
History. The white poppy is a native of the
mer parts of Asia; from which it was
bably imported into Europe and England.
s an annual plant, and flowers in July. The
um of commerce is an exudation from the
sules of the plant, produced by incisions.
the parts of the plant contain this juice, but
s much more abundant in the capsules. The
l, or wild poppy is indigenous, and grows
undantly in corn fields and waste lands. It
wers in June and July. The capsules even of
s species of poppy contain a small portion
opium.

Qualities. The dried head of the white poppy
without much either of smell or color. Boil-
; water extracts its virtues, and the evaporated
tract has much of the opiate property; it is,
wever, much milder. The Turkey opium has
emarkably heavy narcotic odor, and a bitter
ngent taste. The East India opium is in
lor much darker than the Turkey; it has an
pyreumatic smell, with a more nauseous, but
s bitter, taste than the Turkey. It is not
arly so strong as the latter. The active
nuent of opium, together with the principles
other medicinal substances, we shall have
speak of under the head of PHARMACY. We
y here say, generally, that different parts of
e drug in question are acted on by alcohol,
er, and water.

Medical properties. Opium is proverbially
rotic. It is used in almost all affections that
e characterised by violent pain, but its employ-
ment often requires to be very careful and re-
ctive. The poppy is principally used in
rup and extract. The red poppy is chiefly
mployed as a coloring syrup, as the opiate vir-
es of this root are very feeble. Dose of opium
i. to grs. v.; of poppy extract grs. v.

PASTINACA (opoponax). Opoponax.

History. The plant producing the gum resin
lled opoponax is a species of parsnip, a native
the south of Europe, and flowers in July.
e gum resin is obtained by exudation from in-
sions; it is imported principally from the
vant in tears or irregular lumps.

Qualities. Opoponax has a strong disagreeable
lor and an acrid bitterish taste. It is not
olly soluble in water. Alcohol is not its
oper menstruum.

Medical properties. Antispasmodic and em-
enagogue. Not much employed. Dose ℥ss to
ʒ.

PETROLEUM. See BITUMEN.

PHASIANUS (gallus). Dunhill fowl. The
g.

History. It has not been correctly ascertained
om what country this bird originally came. It
is been said to have been brought from Persia
out 500 years before the Christian era. It is
ily the egg that is officinal.

Qualities. The contents of the egg consist of
e white, which is an insipid, glary, tenacious,

fluid; and the yolk, which has a bland oily taste.
The shell is made up of carbonate of lime, phos-
phate of lime, and animal mucus.

Medical properties. The yolk is gently ape-
rient, and was, at one time, much used in jaun-
dice. The white is principally employed for
clarification; and the shells are antacid.

PHYSETER (macrocephalus). Spermaceti.

History. The species of whale from which
the spermaceti of commerce is obtained is cha-
racterised by a particularly large head. It is
principally found in the South Seas. The ceta-
ceum, or as it is vulgarly named spermaceti,
is taken out from the cavity of the head, and
purified by a long process.

Qualities. Spermaceti when purified is white,
insipid, and unctuous. It is only miscible with
water by the medium of mucilage or yolk of egg;
hot alcohol and ether dissolve it, but it sepa-
rates upon cooling.

Medical properties. Demulcent and emollient.
It is often administered as a vehicle of and ad-
junct to opium in mitigating the pains after child
birth. Dose ℥j to ʒiʒ.

PIMPINELLA (anisum). Anise. The seeds.

History. A native of the east, but cultivated
in Europe, and even in this country for its seeds.
The plant flowers in July.

Qualities. Anise seed gives out an aromatic
odor, and it has a warm sweetish taste. Its
virtues are imparted both to water and to al-
cohol.

Medical properties. Carminative; principally
employed in composition and in the flatulencies of
children. Dose ℥ss to ℥j.

PIMENTO. See MYRTUS.

PINUS (sylvestris) common turpentine. (Larix)
Venice turpentine. (Balsamea) balsam of Ca-
nada. (Abies) Burgundy pitch.

History. The pinus sylvestris or Scotch fir
is a common tree of the north. The larch tree,
from which the Venice turpentine is procured, is
a native of the south of Europe and Siberia.
One species comes from America. The bal-
samea which yields the Canada balsam is from
the most northern parts of America, while the
abies or spruce fir, which gives the Burgundy
pitch, comes from Europe, and the north of
Asia; what is called oil of turpentine is pro-
cured by distilling the resinous exudation from
the tree, the resin itself being known by the
name of turpentine. Common or yellow resin
is the residue of the distillation. Tar is formed
by slowly burning branches of the pine. Ve-
nice turpentine is procured from the larch tree
by boring a hole into the tree, and suffering
the turpentine to flow. Canada balsam is ob-
tained by incisions into the body of the pinus
balsamea from which it exudes. Burgundy
pitch is also obtained by incisions into the tree
which yields it, and the resin or Thus exudes
spontaneously from the same tree.

Qualities. The above several species of tur-
pentine have all a great deal in common: they
are pungent to the taste, have a peculiar odor,
and are completely dissolved in alcohol and
ether, while their flavor only is imparted to
water. The common turpentine is bitter and
disagreeable to the taste, and of a strong odor;

it is more opaque than the other turpentines. Venice turpentine is of a less unpleasant taste and smell, of a yellowish color, and more fluid. The Canada balsam is whitish and more transparent. For the Chian turpentine, see *Pistacia*. The oil of turpentine is hot and pungent to the taste. It is, when pure, without color; it dissolves in sulphuric ether, but sparingly and with difficulty in alcohol. Tar has a strong odor, it is partly soluble in water, and is formed into the substance called pitch by inspissation from boiling. The resins are insoluble in water, but entirely soluble in ether and alcohol. Their taste is acrid, and when they are heated they emit a slight turpentine odor. Burgundy pitch is unctuous to the feel, is of a reddish-brown color, and of a turpentine odor.

Medical properties. Turpentine and its oils are stimulating and powerfully cathartic. They have also a strong action upon the kidneys. Oil of turpentine has lately been employed as an anthelmintic especially against the tape worm. Tar is used principally in chronic affections of the skin, but is not at present in much estimation. Burgundy pitch and the resins are principally confined to external use, and enter into the composition of ointments and plasters. Dose of the oil of turpentine, as an anthelmintic, f. 3j, for other purposes f. 3℥ to f. 3j.

PIPER. (*Nigrum*) Black pepper. (*Longum*) long pepper. (*Cubeba*) cubebes.

History. The black pepper plant is a native of the East Indies. The pepper itself is the berry of the plant, two crops of which are yielded, one in December, and one in July. The white pepper is the same berry gathered when it is fully ripe and freed of its outer covering by maceration. The long pepper plant is also a native of the east. The fruit is gathered before it is ripe, and dried by the heat of the sun. The cubebes plant is a native likewise of the east. Its fruit grows in clusters.

Qualities. Black pepper is pungent to the taste, and has an aromatic smell. Its virtues are partially given to water, and entirely to alcohol and ether. The long pepper has an exceedingly hot flavor, with a weak aromatic smell. The oil of cubebes is agreeable and rather fragrant, but the taste is pungent and slightly bitter.

Medical properties. The peppers are generally carminative. Cubebes is diuretic, and it has lately been administered in discharges from the mucous membranes both of the urinary organs, and the bowels. Dose of the pepper grs. v. to ʒj, of the cubebes ʒj to 3j.

Pistacia. (*Terebinthus*) Chian turpentine. (*Lentiscus*) mastiche.

History. The chian turpentine tree is a native of Africa and the east. It is cultivated for the turpentine in the islands of Chios and Cyprus. The mastiche tree is also cultivated, especially in the island of Chios.

Qualities. Chian turpentine is of a very pale yellow color: it does not materially differ from the other turpentines. See *Pinus*. Mastic is merely insipid; when heated it gives out a fragrant odor. It is soluble in ether, but not entirely in alcohol.

Medical properties. The principal use to which mastic is put is that of dividing other medicines so as to make them more active; its combination with aloes is said to be particularly useful in this respect. It is also employed to fill up the hollow of carious teeth. Dose ʒ℥ to ʒj.

Pix. See *Pinus*.

PLUMBUM. Lead.

History. Lead is a metal of a bluish-gray color: it is found native both in a metallic state and combined with oxygen in various proportions. The ore from which metallic lead is principally procured is Galena.

Qualities. Lead possesses considerable lustre, which is soon lost when the metal is exposed to the air. It is almost without taste, and has rather an unpleasant odor, especially when rubbed. It combines very readily with oxygen.

Medical properties. Lead in its metallic state has no medicinal properties. The white lead is prepared with vinegar, and has been described as an acetate, but is generally now considered a carbonate; it is astringent; it is called generally ceruse, and is principally employed for inflamed parts and old sores. Litharge is also used as an external astringent; it is prepared by exposing metallic lead to heat and air so as to oxidise the metal. Red lead or minium has been also employed, but is now seldom used. In this last preparation the lead is in the highest state of oxidisation. See **PHARMACY** and **CHEMISTRY**.

POLYGALA (*senega*). Seneka root.

History. This plant grows wild in North America, especially in Virginia; it is perennial. The root is the part employed.

Qualities. It is the bark of the root which contains the qualities of the drug; which is pungent to the taste, but without much smell. Alcohol extracts the active matter of the root, which is thrown down by the addition of water.

Medical properties. Stimulant and expectorant. It is also diuretic and purgative. It has been employed in low fever when the lungs are affected, and in hydropic disorders. Dose ʒj to ʒj.

POLYGONUM (*bistorta*). Bistort wood, or snakeweed.

History. This plant is indigenous, growing principally in moist lands, and flowering in June.

Qualities. The taste of the root is rough and austere; it is inodorous. Water extracts its virtues.

Medical properties. Powerfully astringent and tonic. Not at present in much use. Dose ʒ℥ to 3j.

PORRUM. See *Allium*.

POTASSE NITRAS. Nitrate of potass, nitre.

History. This salt is found native on the surface of soils in many countries; and it is prepared artificially by an imitation of nature, and exposing animal and vegetable substances to putrefy in conjunction with calcareous earth; nitric acid is one of the products which unites with the potass, that is either generated or already existent in the animal and vegetable matter employed. The sal prunelle of commerce is melted nitre cast into moulds.

Qualities. Nitre has a salt bitterish taste; it is inodorous. It is completely soluble in boiling water, but insoluble in alcohol. When mixed with inflammable substances it detonates with heat.

Medical properties. Refrigerant and diuretic. An exceedingly good medicine in some forms of fever and inflammations. Dose $\mathfrak{z}\mathfrak{j}$ to $\mathfrak{z}\mathfrak{j}$.

POTASSÆ. Potash. Pearlash.

History. This substance, which is an impure subcarbonate of potass, principally comes from the Baltic and from America; it is produced by burning the dried stems and branches of plants, and lixiviating the ashes or pouring water upon them so as to dissolve and separate the alkaline product.

Qualities. Pearlash is of a spongy texture; it is of a grayish or greenish color, and has a saline disagreeable taste.

Medical properties. Vegetable alkalies are antacid, and diuretic, and lithontriptic, but the pearlash of commerce is too impure to employ for medicinal purposes.

POTASSÆ SULPHAS. Sulphate of potass. See PHARMACY.

PRUNUS (domestica). Plum tree.

History. This tree is originally from Greece and Asia; but it now grows wild in this country, and flowers in the beginning of May. The dried fruit is imported from the continent: the French prunes are considered the best.

Qualities. The taste of prunes is subacid and sweetish; they are without much odor. They are principally composed of saccharine and mucilaginous matter, and of malic acid.

Medical properties. Laxative. They are principally employed in the composition of decoctions and electuaries.

PTEROCARPUS (santalinus) red sanders wood. erinacea) kino.

History. The red sanders tree is a native of India, and grows to a great size. Its wood is brought to this country in large billets. The tree which yields the kino is said to be of African growth, and of the species of pterocarpus which is called erinacea. The kino generally met with in the shops is extracted from the nuclea gambir; but there seems to be considerable doubt in reference to this product and its source.

Qualities. The red sanders wood is nearly insipid, but has an aromatic odor. It is of a bright red color, which is yielded to alcohol and ether, but not to water. Kino is without odor, but is of a bitterish astringent taste, differing according to the part whence it comes. It is partly soluble both in water and alcohol.

Medical properties. Red sanders wood is only used as a coloring matter. Kino is a powerful and useful astringent. Dose $\mathfrak{z}\mathfrak{j}$ to \mathfrak{ss} .

PULEGIUM. See *Mentha*.

PENICA (granatum). Pomegranate.

History. The pomegranate tree is a native of the south of Europe and of Barbary. Its fruit does not come to perfection when cultivated in our gardens.

Qualities. The flowers which are named baustines are of an elegant red color; without

much smell, and of a bitterish astringent taste. The bark possesses the same sensible qualities. Water extracts them.

Medical properties. Astringent, and, according to some, anthelmintic. Dose, $3\mathfrak{j}$ to $3\mathfrak{j}\mathfrak{ss}$.

PYRETHRUM. See *Anthemis*.

PYRUS (cydonia). Quince.

History. This tree is a native of Crete, but is cultivated with us, and its fruit ripens in this climate.

Qualities. Quinces have an austere acid taste. Their seeds are without odor, and have a slight bitterness.

Medical properties. Aperient and demulcent. Ad libitum.

QUASSIA (simarouba). Simaruba bark and wood. (Excelsa). Quassia.

History. The simaruba or mountain damson is a native of South America. Quassia grows in Jamaica. It is the bark of the former and the wood of the latter which are in use.

Qualities. Simaruba is bitter to the taste, and without much odor. Its virtues are given to water and alcohol. Quassia is exceedingly bitter, and without odor. The bitterness of quassia is imparted both to water and alcohol.

Medical properties. Simaruba is tonic and astringent; it has been used in intermittent fevers and dysentery. Quassia is employed principally as a stomachic tonic. Dose of the simaruba $\mathfrak{z}\mathfrak{j}$ to $3\mathfrak{j}$; of the quassia $\mathfrak{z}\mathfrak{j}$ to $\mathfrak{z}\mathfrak{j}$.

QUERCUS (infectoria) Gall. (Pedunculata) Oak bark.

History. The galls of commerce are said to be from the infectoria species of oak. The galls are produced by the cynips quercus folii, a small hymenopterous insect, puncturing the shoots of the young boughs, and depositing its eggs; this puncture and deposit occasion an irritation which at length comes to form the excrescence called the gall. The oak is indigenous, and a well known tree.

Qualities. Galls have a bitter and astringent taste. They are without smell; they are of a blackish or olive color, and their size varies from that of a pea to a hazel nut. They impart their properties to a certain measure of water and alcohol. The bark of the oak is inodorous, and of an astringent taste; it yields its virtues both to alcohol and water.

Medical properties. Galls are very powerfully astringent; they are principally employed as external remedies. Oak bark is astringent and tonic. Some have employed it in intermittent fevers, as a substitute for the cinchona bark. Dose of galls grs. v. to $\mathfrak{z}\mathfrak{j}$; of the oak bark $\mathfrak{z}\mathfrak{j}$ to $3\mathfrak{j}$.

RHAMNUS (catharticus). Buckthorn.

History. An indigenous shrub, growing in hedges, and flowering in May and June. It is the berries which are used in medicine.

Qualities. Buckthorn berries have a disagreeable, rather faint smell, and a nauseous, acrid, and bitter taste. Their juice is green, or of a more purple dye if gathered late in the season.

Medical properties. Powerfully cathartic. Dose $3\mathfrak{j}$ to $3\mathfrak{j}$.

RHEUM (palmatum) palmated rhubarb. (Undulatum) Waved-leaved rhubarb.

History. The rheum palmatum is a native of China; in the shops three varieties of rhubarb are found, the Russian, the Turkey, and the East Indian; the first two are evidently the root of the same species; the East Indian rhubarb has been thought a different species (the rheum undulatum); but we are informed by Dr. Rehman that the species is the same with the others, but that there is less care in the preparation.

Qualities. Rhubarb has a peculiar odor, and a nauseous slightly astringent taste. The East India rhubarb is more nauseous than the Turkey, and has a stronger odor; its powder is of a higher red. Turkey or Russian rhubarb is said to contain 'more tannin, oxalate of lime, and resin; the Chinese more extractive and gallic acid.' Water, alcohol, and ether, are partial solvents.

Medical properties. Rhubarb is purgative, stomachic, and astringent in different doses. From the analysis we should expect that the Chinese kind had more of the last quality. Dose $\mathfrak{z}\text{ss}$ to 3ss ; in smaller quantities as an astringent and stomachic.

RHODODENDRON (chrysanthum). Yellow flowered rhododendron.

History. This shrub is a native of Siberia, and flowers in June and July. The leaves are the parts employed.

Qualities. Taste astringent, and rather bitter; almost without smell. Water extracts its virtues.

Medical properties. Stimulant, narcotic, and diaphoretic. It has been used in rheumatism and gout. Dose grs. v. to $\mathfrak{z}\text{ss}$.

Rhus (toxicodendron). Sumach, or poison oak.

History. A deciduous shrub, a native of North America. The leaves are the parts employed.

Qualities. Sumach leaves have a mawkish taste; they are without much smell. Their virtues are freely imparted both to water and alcohol.

Medical properties. Narcotic. Dose gr. \mathfrak{z} to grs. ij.

RICINUS (communis). Common ricinus, producing the castor oil.

History. This plant grows in both the Indies, in Greece, and in Africa; its capsules contain a white oily kernel, from which the oil is extracted, both by expression and by boiling. The seeds are occasionally employed.

Qualities. The genuine oil is viscid, and of a pale straw color; it is without much smell, and occasions a slight sense of acrimony in the throat when swallowed. It is soluble in alcohol and ether.

Medical properties. Mildly purgative. Dose f. $\mathfrak{z}\text{ss}$ to f. \mathfrak{z} .

Rosa (gallica) red rose. (Centifolia) damask rose. (Canina) wild dog rose.

History. The red rose is a native of the south of Europe, but cultivated in our gardens, and flowering in June and July. The native place of the damask rose is unknown, but it is much cultivated in our gardens. The dog rose grows wild in hedges.

Qualities. The odor of the red rose is not so fragrant as that of the damask species. The taste of the petals is astringent and slightly but pleasantly bitter. The odor of the damask rose is exceedingly pleasant, and its taste rather acidulous. The dog rose is employed for the pulp of its fruit, or hip, as it is commonly called; the petals are fragrant, but without much of the quality which renders the cultivated species useful.

Medical properties. The red rose is astringent, and the Damask rose slightly laxative. The pulp of the wild rose fruit is refrigerant, and perhaps slightly aperient. Dose \mathfrak{z} to $\mathfrak{z}\text{ss}$.

ROSMARINUS (officinalis). Rosemary.

History. A native of the south of Europe, but cultivated in our gardens; it is perennial. The leaves and the tender tops are the strongest parts of the plant.

Qualities. Odor grateful; taste pungent and aromatic. Alcohol extracts its virtues, which are only given out partially to water.

Medical properties. Stimulant, and emmenagogue. Dose $\mathfrak{z}\text{ss}$ to 3ss .

RUBIA (tinctorum). Madder.

History. Madder is a perennial plant, originally from the Levant, but cultivated with us. The root is the part used both in dyeing and in medicine.

Qualities. The smell of madder is disagreeable, but not very powerful; its taste is rather bitter. Water and alcohol imbibe its qualities.

Medical properties. Emmenagogue. Dose 3ss to \mathfrak{z} .

RUMEX (aquaticus) Water-dock. (acetosa) Common sorrel.

History. Water dock is indigenous and perennial, growing by the sides of ditches and rivers, and flowering in July and August. Common sorrel is also indigenous and perennial, and flowers in June.

Qualities. The root of water dock is inodorous, but the taste of it is highly austere. Its qualities are imparted to water. Sorrel leaves have very little smell, but an acidulous pleasant flavor. Boiling water extracts their properties.

Medical properties. Water-dock is astringent. It has been used in cutaneous affections with alleged success. Sorrel leaves are diuretic and refrigerant. Dose $\mathfrak{z}\text{ij}$.

RUTA (graveolens). Common rue.

History. This is a native of the south of Europe, but much cultivated in our gardens; it flowers in June and September.

Qualities. The leaves of rue have a peculiar odor and a bitterish penetrating taste. Their volatile quality is yielded to distillation by water.

Medical properties. Stimulating, and supposed to be emmenagogue. Dose $\mathfrak{z}\text{ss}$ to $\mathfrak{z}\text{ij}$.

SABINA. See Juniperus.

SACCHARUM (officinarum). Sugar cane.

History. The sugar cane is a native of both the Indies. In the West Indies it is cultivated very extensively; from this plant sugar is obtained, first by expressing, then boiling the juice. Molasses is that part of the juice which does not crystallise.

Qualities. Sugar has a well known sweetness;

it is inodorous. Water and alcohol dissolve it in different proportions. The molasses or treacle has a peculiar odor, and a sweet empyreumatic taste; it is viscid, and of a brown or black color. It is more soluble in alcohol than sugar.

Medical properties. Laxative, particularly the raw sugar and the molasses.

SAGAPENUM. Sagapenum.

History. The plant which furnishes this concrete juice has not been ascertained; Willdenow supposes it to be the *ferula persica*.

Qualities. Sagapenum comes to us in large masses or in small tears; it is of a yellowish color, has a garlicky smell, and a taste not unlike assafetida. Proof spirit is its best solvent.

Medical properties. Antispasmodic and emmenagogue. Dose \mathfrak{ss} to \mathfrak{ss} .

SALIX (*fragilis*) crack willow. (*Alba*) white willow. (*Caprea*) common willow.

History. The crack willow is indigenous, growing upon river banks, and flowering in May. The white willow grows principally in woods, as does the species called *caprea*. It is the bark of the tree which is employed.

Qualities. Willow bark is bitter to the taste and without odor.

Medical properties. Tonic and astringent. Some have employed it in pulmonary affections of a phthisical nature. Dose \mathfrak{ss} to \mathfrak{ss} .

SALVIA (*officinalis*). Sage.

History. A perennial plant; a native of the south of Europe, but cultivated in our gardens, and flowering in June.

Qualities. Sage has a fragrant odor, and an aromatic bitterish taste. The oil can be obtained by distillation.

Medical properties. Carminative and aromatic; not so much in estimation as formerly. Dose \mathfrak{ss} to \mathfrak{ss} .

SAMBUCUS (*nigra*). Common elder.

History. This is a common indigenous plant, flowering in June, and ripening its berries in September.

Qualities. Elder flowers have a faint smell and bitterish taste; their qualities are imparted to water by infusion. The berries are almost without smell, but have a sweetish taste. The inner bark of the tree is inodorous also, and has a sweetish taste, followed by a degree of bitterness and acrimony. Water and alcohol extract their virtues. Dose grs. v. to \mathfrak{ss} .

SAP. Soap. (*Durus*) hard soap. (*Mollis*) soft soap.

History. Soap is of two kinds—hard, which is made of oil and soda; soft, which is composed of oil and potassa.

Qualities. Hard soap has very little smell, and a nauseous alkaline taste; it is white (unless artificially colored) and of a firm consistence. Water and alcohol are both partial solvents of it. Soft soap principally differs from the hard kind in being of a less firm consistence.

Medical properties. Lithontriptic, diuretic, and aperient. Soft soap is principally employed in external uses. Dose \mathfrak{ss} to \mathfrak{ss} .

SARSAPARILLA. See *Smilax*.

SASSAFRAS. See *Laurus*.

SCAMMONIA. See *Convolvulus*.

SCILLA (*maritima*). Squill.

History. Squill is a perennial plant, bulbous rooted, growing in the south of Europe and north of Africa. It flowers in April and May.

Qualities. Squill has not much odor; its taste is bitter, acrid, and nauseous.

Medical properties. Diuretic and expectorant. In large doses emetic. Dose as an expectorant grs. v. to grs. iij; as an emetic \mathfrak{ss} to grs. xv.

SCROPHULARIA (*nodosa*). Figwort.

History. An indigenous plant, growing in woods and under hedges, and flowering in July; it is perennial.

Qualities. The smell of the recent leaves is fetid, and their taste disagreeable and bitterish. Their virtues are yielded to water.

Medical properties. Diuretic and sedative. Very little used.

SENEGA. See *Polygala*.

SENNA. See *Cassia*.

SERPENTARIA. See *Aristolochia*.

SEVUM. See *Ovis*.

SIMAROUBA. See *Quassia*.

SINAPIS. (*Alba*) white mustard seed. (*Nigra*) common mustard.

History. The white mustard seed plant is indigenous, and grows in fields and by road sides; it is annual, and flowers in June. The common mustard is also indigenous and annual, and flowers likewise in June.

Qualities. Mustard seed when entire has very little smell; when bruised its odor is penetrating, and taste pungent. The seeds of the common mustard are rather more pungent than the other.

Medical properties. Stimulant, diuretic, and, when externally employed, rubefacient. The whole seed of the white mustard has lately been employed extensively as a domestic medicine in cases of dyspepsia and torpid bowel. Dose \mathfrak{ss} to \mathfrak{ss} .

Sium (*nodiflorum*). Water parsnip.

History. An indigenous and perennial plant, growing wild in rivers and ditches, and flowering in the beginning of August.

Qualities. Nearly inodorous, and having a sweetish taste.

Medical properties. Emmenagogue and diuretic. At present very little employed. Dose of the expressed juice, f. \mathfrak{ss} .

SMILAX (*Sarsaparilla*). Sarsaparilla.

History. A native of the Spanish West Indies, flowering in July and August. It is the root which is employed medicinally; but it is the bark of the root in which the efficacy resides.

Qualities. Taste mucilaginous, and slightly bitter; scarcely any odor. Its qualities are yielded in different proportions to water and alcohol.

Medical properties. Demulcent and diuretic. It has been much employed in syphilitic and cutaneous affections. Dose \mathfrak{ss} to \mathfrak{ss} .

SODA (*Impura*). Carbonate of soda, barilla.

History. Soda is found native in the form of a carbonate, in several parts on the surface of the earth; but the greatest part of that employed in commerce is extracted from the ashes of some species of the algae. What is called kelp is the carbonate of soda obtained by burning the sea wrack.

Qualities. Barilla when good is of a grayish color; it is without much odor, but has a sharp alkaline taste.

Medical properties. Antacid, diuretic, and lithontriptic; but the barilla is only employed as one of the substances to furnish the pure carbonate or subcarbonate of soda. See PHARMACY.

SODÆ MURIAS. Muriate of soda. Common salt.

History. This salt is found abundantly in nature, but it is generally mixed with earths and other ingredients. The ocean owes its saline taste to the presence of this salt.

Qualities. Pure salt is without odor, and its saline taste is without bitterness. It is soluble freely in water.

Medical properties. Anthelmintic and stomachic. It is supposed to assist digestion in a very considerable degree. Dr. Paris, in his work on diet, highly lauds it on this score. Dose \mathfrak{Dj} to $\mathfrak{3j}$.

SODÆ SUBBORAS. Subborate of soda. Borax.

History. Borax is found in an impure state in Persia and Thibet; in this state it is called tincal.

Qualities. Inodorous, with taste slightly saline. When purified it is in large white masses. Boiling water dissolves it more freely, and in greater proportions than cold water.

Medical properties. Refrigerant and detergent. It is only used as a local or external application, and is much employed in the aphthæ of children.

SODÆ SULPHAS. Sulphate of soda. Glauber's salt.

History. This salt is found native in several parts mixed with other matters; but the greatest part that is used is manufactured.

Qualities. Taste saline and bitter, inodorous. Soluble in water to a considerable extent.

Medical properties. Purgative; but not so much used as formerly on account of its disagreeable taste. See PHARMACY.

SOLANUM (dulcamara). Woody nightshade.

History. Indigenous, growing in hedges, and flowering in July. The berries ripen in the beginning of October.

Qualities. The taste of the twigs, which are the parts employed, are both bitter and sweet; hence its name, bitter-sweet. They impart their virtues to boiling water.

Medical properties. Narcotic and diuretic. It has been employed in several forms of cutaneous disorder. Dose \mathfrak{Dj} to $\mathfrak{3jss}$.

SOLIDAGO (virga-aurea) golden rod.

History. An indigenous perennial plant, growing in woods and upon heaths. It flowers from July to September.

Qualities. Odor aromatic; taste rather astringent. The leaves impart their qualities to boiling water.

Medical properties. Slightly astringent and lithontriptic. Dose \mathfrak{Dss} to $\mathfrak{3j}$.

SPARTIUM (scoparium) broom.

History. Indigenous, growing on dry lands, and flowering in June.

Qualities. The tops, which are the parts used, have a disagreeable smell and bitter taste. Their

qualities are given both to water and alcohol.

Medical properties. Diuretic and cathartic. Dose \mathfrak{Dss} to $\mathfrak{3j}$.

SPIGELIA (marilandica) Indian pink.

History. A perennial plant growing wild in the lower parts of North America. It flowers in July and August.

Qualities. The root, which is the part employed, is bitter to the taste; its virtues are imparted to boiling water.

Medical properties. Anthelmintic; principally useful in expelling the round worms. Dose \mathfrak{Dss} to $\mathfrak{3j}$.

SPIRITUS VINI. See CHEMISTRY and the article ALCOHOL, and PHARMACY.

SPONGIA (officinalis) sponge.

History. Sponge is principally found in the Mediterranean and Red Seas. It is usually attached to the bottom of rocks; it was formerly supposed to be a vegetable production, but it is now admitted to be an animal of the class zoophytes.

Qualities. Color brown, texture light and porous, absorbing fluid in which it is immersed.

Medical properties. Alterative when burnt, and useful in some glandular tumors. Its virtues are supposed to be referable to the quantity of iodine it contains. Dose $\mathfrak{3ss}$ to $\mathfrak{3j}$.

STALAGMITIS (cambogioides). Gamboge.

History. The tree furnishing this gum resin is a native of the kingdom of Siam and Ceylon; in the former place the inhabitants obtain the gamboge by breaking the leaves and young shoots; but in Ceylon it is extracted from the wood of the tree, by incisions, at the commencement of flowering.

Qualities. Gamboge has no smell, and very little taste; it is of a bright deep yellow color. It is almost entirely soluble in water, if the water be impregnated with an alkali. Alcohol and the alkalies are also solvents of gamboge.

Medical properties. Powerfully cathartic and hydragogue. Dose grs. \mathfrak{ij} to \mathfrak{Dss} .

STANNUM. Tin.

History. In some places, as in Cornwall, this metal is found native in great abundance; it occurs both in its metallic state and combined with oxygen.

Qualities. Rather disagreeable taste, and a peculiar odor, especially when rubbed. It shows considerable lustre when first exposed to the air, which by this exposure is soon lost.

Medical properties. Anthelmintic. Dose $\mathfrak{3i}$ to $\mathfrak{3ij}$.

STAPHISAGRIA. See *Delphinium*.

STYRAX (officinale) storax balsam. (Benzoin) benzoin.

History. The storax tree is a native of the Levant, and flowers in July. The balsam is procured by incisions made in the bark. The benzoin, or benjamin tree, grows in Sumatra; the balsam is also obtained from this tree by incisions.

Qualities. Storax has a fragrant smell and an aromatic taste. Its color is reddish-brown. Water dissolves it partly; alcohol and ether completely. Benzoin balsam has but little taste, but emits a very pleasant smell. Alcohol and ether readily dissolve this balsam also.

Medical properties. Storax is slightly expectorant.

torant. Benzoin perhaps more so. Dose 3ʒ.
SUCCINUM. Amber.

History. Amber is a vegetable substance dug out of the earth, or found upon the sea shore in Polish Prussia and Pomerania. The greater part of what is imported into this country comes from the Baltic.

Qualities. Amber is without much taste or smell, unless rubbed or heated, when it emits an agreeable odor. It is generally of a yellow or brown color. It is insoluble in water, and only partly soluble in alcohol.

Medical properties. Antispasmodic; but scarcely now employed. Dose 3ʒ to 3j.

SULPHUR.

History. This substance is found native in the neighbourhood of volcanoes; but the sulphur of commerce is principally extracted from pyrites.

Qualities. Sulphur is of a bright yellow color, has a peculiar odor, especially when heated, and is without much taste. The roll sulphur is crystallised. Sublimed sulphur is in the form of powder. Sulphur is insoluble in water, but soluble in a small degree in alcohol and ether.

Medical properties. Laxative and diaphoretic. Specific in scabies. It is, perhaps, more useful as an alterative aperient than is generally supposed in the regular practice of medicine. Dose 3ʒ to 3ij.

SUPERTARTRAS POTASSÆ (impurus) tartar. (Purus) crystals of tartar. Cream of tartar.

History. Tartar is the saline extractive matter which is deposited from new wine on the sides of the cask or bottle in which it is kept. When purified (which is effected by boiling, filtering, and crystallising) it is the cream of tartar of commerce.

Qualities. Cream of tartar is a bitartrate of potass. It has an acid roughish taste, and is soluble in thirty parts of its weight of boiling water.

Medical properties. Purgative, diuretic, and refrigerant. Much used in dropsy. Dose ʒ 3j to 3j.

SUS (scrofa). Hog; the fat; hog's lard.

History. The hog is a well known animal, inhabiting most parts of temperate regions. The wild hog and that which is domesticated are varieties of the same species. It is the fat which is employed for medicinal purposes.

Qualities. Good lard is very white, without much smell or taste; it is insoluble in water, alcohol, or ether, but capable of combination with the alkalies in the form of soap.

Medical properties. Emollient; but principally employed in the composition of ointments and plasters.

SWIETENIA (febrifuga).

History. A native of the East. It is the bark of the tree which is employed in medicine. The bark of the species of swietenia, called mahogany, has likewise been employed medicinally. This tree is from the West Indies.

Qualities. Febrifuge. Swietenia is pleasantly bitter and astringent to the taste; it is of a grayish color without, but breaks of a light red color. The bark of the mahogany tree is very astringent and bitter. Water, when boiling, extracts the virtues of these barks.

Medical properties. Tonic and astringent. Both these barks have been used as substitutes for the Peruvian bark; but they are not much employed in Britain or in Europe. Dose ʒj to 3j.

TAMARINDUS (Indica). Tamarind.

History. The tamarind tree is a native of both the Indies; it is also found in Egypt and Arabia. The part employed is the fruit or pulp, artificially prepared.

Qualities. Tamarinds have an agreeable acid taste. They contain citric, and malic, and tartaric acid, with supertartrate of potass.

Medical properties. Refrigerant and laxative. Resinous purgatives are rendered milder by their admixture with tamarinds.

TANACETUM (vulgare). Tansy.

History. Tansy is indigenous and perennial. It grows wild by road sides and on the borders of meadows, and flowers at the end of June. The leaves are the parts employed, sometimes the seeds.

Qualities. Taste acrid, and rather bitter, slightly resembling camphor. Smell, strong and peculiar. Water and alcohol extract its virtues.

Medical properties. Tansy leaves and seeds are considered tonic and vermifuge. An infusion of tansy has been recommended and employed to prevent the recurrence of gout. Dose 3ʒ to 3j.

TEUCRIUM (marum) common marum. (Chamædrys) wall germander.

History. Marum, or Syrian mastich, is a native of Spain and Syria, and cultivated in our gardens. The wall germander is indigenous, and shoots out on old walls, flowering in June and July.

Qualities. Marum is very pungent in its smell, readily exciting sneezing when rubbed between the fingers and held to the nostrils. The taste is bitterish and aromatic. The recent leaves of the wall germander are aromatic and pleasantly bitter; they lose their smell by drying.

Medical properties. The marum is errhine. The germander has been used as an emmenagogue, and as a stomach tonic. Dose ʒ 3j to 3j.

TOLUTANUM (balsamum). Tolu.

History. The tree which yields the balsam of Tolu is a native of South America. It has been ascertained to be the same from which the Peruvian balsam is procured; the tolu balsam being the white Peruvian balsam hardened by exposure to the air. The tolu balsam flows from incisions made in the bark during the hot season.

Qualities. This balsam has an exceedingly agreeable smell, and an aromatic sweetish taste. It is of a yellowish-brown color, rather inclining to red. It is soluble in alcohol, and yields a small portion of volatile oil by distillation with water.

Medical properties. Stimulant and expectorant. Rather less irritating than the other balsams. Dose ʒ 3j to 3ʒ.

TORMENTILLA (erecta). Tormentil.

History. This is a common plant in woods and on heaths, and flowers in June and July. It is the root that is employed.

Qualities. An aromatic austere taste, and a slightly aromatic odor. It is knotty, and externally blackish, breaking reddish.

Medical properties. Astringent. More deserving of credit than many other substances that are used for the same purposes. Dose 3ß to 3j.

TRITICUM (hybernium). Wheat. Starch.

History. Wheat was first cultivated in Sicily, but whence it came into Europe does not seem to have been ascertained. The spring wheat is a variety. Starch is the fecula of wheat.

Qualities. Starch is without smell or much taste. It is insoluble in cold water, alcohol, and ether. Boiling water dissolves it.

Medical properties. Emollient; used principally in enemas.

TUSSILAGO (farfara). Colts-foot.

History. This is an indigenous plant, growing wild in moist situations, and flowering in March and April; the leaves soon appear after the flowers. These last are the parts principally employed.

Qualities. The taste of the colts-foot leaves is mucilaginous and subacid. When dried they are without smell.

Medical properties. Demulcent and mildly expectorant.

VALERIANA (officinalis). Valerian.

History. An indigenous perennial plant, and flowering in June. One variety of valerian grows in marshy and woody parts, another in high and open ground.

Qualities. The root, which is the part employed, has a strong unpleasant smell, and a bitterish warm subacid taste. It yields its virtues to water when boiling, and to alcohol.

Medical properties. Antispasmodic and stimulant. Some have employed it as an anthelmintic. Dose, 3i to 3j.

VERATRUM (album). White hellebore.

History. This plant is a native of Italy, Greece, and Germany; it is cultivated in our gardens, and flowers in July.

Qualities. The root, when recent, has a strong disagreeable smell, and a bitterish acrid taste. The odor is dissipated by drying. The external appearance of it is of a yellowish-gray.

Medical properties. Violently purgative. Not at present in much use internally. It is employed externally as an errhine, and is powerful. Dose, gr. i. to ij.

VERONICA (beccabunga). Brooklime.

History. This plant is perennial and indigenous, common in ditches and rivulets. It flowers at the latter end of July.

Qualities. The leaves of brooklime have a bitterish taste, slightly astringent. They are without odor.

Medical properties. Antiscorbutic, but not in much repute.

VIOLA (odorata). Violet.

History. Perennial and indigenous, growing in shady places, and flowering in April.

Qualities. Violet flowers have an agreeable smell, and a slightly bitter taste. They yield their properties to boiling water.

Medical properties. Laxative, and, according to some, pectoral and anodyne. Dose ʒß.

VITIS (vinifera). Common vine. Berries.

History. The vine grows in most temperate regions. It is cultivated in several parts of Europe for the purpose of making wine with its

berries; but in England the grapes or berries of the vine are very little used but for eating. There are several varieties of the vine.

Qualities. Grapes are sweet and subacid to the taste. Raisins, which are dried grapes, are generally sweeter than the first berry.

Medical properties. Grapes are aperient and slightly diuretic. Raisins are more laxative than the grape; they are principally employed in composition.

VINUM. Wine. See FERMENTATION, CHEMISTRY, and WINE.

ULMUS (campestris). Elm, the bark.

History. The elm tree is indigenous. It flowers in March and April, and the leaves subsequently unfold themselves.

Qualities. Elm bark has a slightly bitter mucilaginous taste, and but very little odor. Its qualities are given to boiling water.

Medical properties. Diuretic. Some have employed it in leprosy affections. Dose ʒj to 3j.

UVA URSI. See *Arbutus*.

WINTERIA (aromatica). Winter's bark.

History. The tree from which this bark is procured was discovered by captain Winter in the straits of Magellan. The bark was used by him as a spice.

Qualities. The odor of this bark is aromatic, and its taste hot and spicy. It yields a volatile oil in distillation with water.

Medical properties. Carminative and stomachic. Canella alba is frequently used for it. Dose ʒj to 3ß.

ZINCUM. Zinc. Calamine. Tutty.

History. This metal is found in its metallic state in the ore called blende, and under several degrees of oxidation. The ore of zinc called calamine is an article of the materia medica in itself; it is found abundantly in several counties of England.

Qualities. Metallic zinc, when rubbed between the fingers, gives out a very peculiar odor; its color is white, with a slight shade of blue; it breaks lamellated and shining. Calamine appears in the form of reddish-yellow lumps, and is without metallic lustre. Tutty, which is an impure oxide of zinc, is of a brownish color, and breaks with a smooth fracture; it is inodorous, and without much taste.

Medical properties. Calamine is used as an absorbent earth. The oxides are employed as tonics and antispasmodics, and externally as astringents and stimulants. Dose of the oxide of zinc grs. iij to ʒß.

ZINZIBER (officinale).

History. A perennial plant, a native of the East Indies, but now cultivated in the West India Islands, where it flowers in September. The black ginger is the root scalded in water before being dried in the sun. The white consists of the best pieces scraped and washed with care, without being subjected to boiling water.

Qualities. Ginger has rather a fragrant smell, and a hot aromatic taste. Water, alcohol, and ether, extract its virtues; and it yields a volatile oil by distillation.

Medical properties. Carminative, stimulant, and sialagogue. Principally employed in composition. Dose ʒß to ʒj.

The principal writers on the *materia medica* are, of the most modern—Paris, Duncan, Thomson, Gray, and John Murray. Preceding them, Cullen and Lewis. Woodville's Medical Botany, as far as it goes, may be considered a useful

materia medica. Murray's *Apparatus Medicamentum* is a voluminous and elaborate work. Hermann's *Cynosura* has enjoyed reputation; and Dr. Alston's, though not perhaps equally satisfactory, is a learned work.

MATERIAL, *adj. & n. s.* } Fr. *matériel* ;
MATERIALIST, *n. s.* } Ital. *materiale* ;
MATERIALITY, } Latin *materialis*.
MATERIALLY, *adv.* } Consisting of, or
MATERIALNESS, *n. s.* } pertaining to,
MATERIATE, *adj.* } matter; corpo-
MATERIATION, *n. s.* } real; weighty :
 important; essential (taking to before the sub-
 ject of relation); not formal: the substance or
 basis of formation; constituent part; generally
 used as a *n. s.* in the plural. A materialist is
 he who argues for the existence of material
 substances only: materiality, and materialness,
 corporeality: materiate, composed of matter:
 materiation, the act of forming it. See MAT-
 TER.

All this concerneth the customs of the Irish very *materially*; as well to reform those which are evil, as to confirm and continue those which are good.

Spenser on Ireland.

What part of the world soever we fall into, the ordinary use of this very prayer hath, with equal continuance, accompanied the same, as one of the principal and most *material* duties of honour done to Christ.

Hooker.

The question is not, whether you allow or disallow that book, neither is it *material*.

Whitgift.

He would not stay at your petitions made;

His business more *material*.

Shakspeare. Winter's Tale.

That these trees of life and knowledge were *material* trees, though figures of the law and the gospel, it is not doubted by the most religious and learned writers.

Raleigh.

The West-Indians, and many nations of the Africans, finding means and *materials*, have been taught, by their own necessities, to pass rivers in a boat of one tree.

Id.

It is more difficult to make gold or other metals less ponderous and less *materiate*, than to make silver of lead or quicksilver, both which are more ponderous than silver; so that they need rather a degree of fixation than any condensation.

Bacon.

Neither is this a question of words, but infinitely *material* in nature.

Id. Natural History.

When we judge, our minds we mirrors make,
 And as those glasses which *material* be,

Forms of *material* things do only take,
 For thoughts or minds in them we cannot see.

Davies.

Considering that corporeity could not agree with this universal subsistent nature, abstracting from all *materiality* in his ideas, and giving them an actual subsistence in nature, he made them like angels, whose essences were to be the essence, and to give existence to corporeal individuals; and so each idea was embodied in every individual of its species.

Digby.

That lamp in one of the heathen temples the art of man might make of some such *material* as the stone asbestus, which being once enkindled will burn without being consumed.

Wilkins.

Intending an accurate enumeration of medical *materials*, the omission hereof affords some probability it was not used by the ancients.

Browne.

Creation is the production of all things out of nothing; a formation not only of matter but of form, and a *materiation* even of matter itself.

Id.

I do not mean, that any thing is separable from a body by fire that was not *materially* pre-existent in it.

Boyle.

The *materials* of that building very fortunately ranged themselves into that delicate order, that it must be a very great chance that parts them.

Tillotson.

As for the more *material* faults of writing, though I see many of them, I want leisure to amend them.

Dryden.

He was bent upon making Memmius a *materialist*.

Id.

I shall, in the account of simple ideas, set down only such as are most *material* to our present purpose.

Locke.

Simple ideas, the *materials* of all our knowledge, are suggested to the mind only by sensation and reflection.

Id.

Male souls are diversified with so many characters, that the world has not variety of *materials* sufficient to furnish out their different inclinations.

Addison's Spectator.

David, who made such rich provision of *materials* for the building of the temple, because he had dipt his hands in blood, was not permitted to lay a stone in that sacred pile.

South.

Though an ill intention is certainly sufficient to spoil and corrupt an act in itself *materially* good, yet no good intention whatsoever can rectify or infuse a moral goodness into an act otherwise evil.

Id.

In this *material* point, the constitution of the English government far exceeds all others.

Swift.

Such a fool was never found,

Who pulled a palace to the ground,
 Only to have the ruins made

Materials for an house decayed.

Id.

In modest mediocrity, content

With base *materials*, sat on well-tanned hides,

Obdurate and unyielding, glassy smooth,

With here and there a tuft of crimson yarn,

Or scarlet crewel, in the cushion fixed,

If cushion might be called, what harder seemed

Than the firm oak, of which the frame was formed.

Cowper.

MATERIALISTS, a sect in the ancient church, composed of persons, who being prepossessed with that maxim in the ancient philosophy, *Ex nihilo nihil fit*, 'Out of nothing nothing can arise,' had recourse to an internal matter, on which they supposed God wrought in the creation, instead of admitting God alone as the sole cause of the existence of all things. Tertullian vigorously opposes the doctrine of the materialists, in his treatise against Hermogenes, who was one of their number.

MATERIALISTS is also a name given to those who maintain that the soul of man is material; or that the principle of perception and thought is not a substance distinct from the body, but the result of corporeal organisation. See METAPHYSICS. There are others called by this name, who

have maintained that there is nothing but matter in the universe, and that the Deity himself is material. See SPINOZA.

MATERNAL, *adj.* } *Fr. materiel*; *Latin*
MATERNITY, *n. s.* } *maternalis, mater.* Motherly; befitting or pertaining to a mother; fond; kind: maternity, the relation or character of a mother.

The babe had all that infant care beguiles,
And early knew his mother in her smiles:
At his first aptness the *maternal* love
Those rudiments of reason did improve. *Dryden.*
In such a palace Aristæus found
Cyrene, when he bore the plaintive tale
Of his lost bees to her *maternal* ear. *Couper.*
Though with her head disowned,
And pale, but lovely, with *maternal* grief
She clasps a babe, to whom her breast yields no relief.
Byron.

MATERNUS DE CILANO (George Christian), a learned Hungarian, born at Presburg. He wrote, 1. *De Terræ Concussionibus*. 2. *De Causis Lucis Borealis*. 3. *De Motu Humorum progressivo Veteribus non ignoto*. 4. *De Saturnalium Origine et celebrandi Ritu apud Romanos*. He died at Altena in 1773.

MATHAM (James), an engraver of considerable eminence, born at Haerlem in 1571. After the death of his father, Henry Goltzius, a celebrated painter and engraver, married his mother. From his father-in-law he learned the art of engraving. To complete his studies, he went to Italy, where he engraved a considerable number of plates. On his return, he worked under the eye of Goltzius, and produced many very valuable prints, after his manner, in a clear, free style, and which are greatly esteemed.

M A T H E M A T I C S.

MATHEMATICS, *n. s.* } *Lat. mathematicus*;
MATHEMATICAL, *adj.* } *cus*; *Gr. μαθημα-
MATHEMATICALLY*, *adv.* } *τικη.* The science
MATHEMATICIAN, *n. s.* } of quantity and
MATHEMATICS, *n. s.* } number. See below.
low. Mathesis is the doctrine of the mathematics: mathematician, he who studies or is a proficient in them.

If a man's wits be wandering, let him study the mathematics; for in demonstrations, if his wit be called away never so little, he must begin again.

Bacon.

The mathematics and the metaphysics
Fall to them, as you find your stomach serves you.

Shakspeare.

Mathematics is a ballast for the soul, to fix it, not to stall it; not to jostle out other arts.

Fuller.

The East and West

Upon the globe, a mathematic point

Only divides: thus happiness and misery,

And all extremes, are still contiguous.

Denham.

It is as impossible for an aggregate of finites to comprehend or exhaust one infinite, as it is for the greatest number of mathematic points to amount to, or constitute a body.

Boyle.

One of the most eminent mathematicians of the age assured me, that the greatest pleasure he took in reading Virgil was in examining Æneas's voyage by the map.

Addison's Spectator.

I suppose all the particles of matter to be situated in an exact and mathematical evenness.

Bentley.

We may be mathematically certain, that the heat of the sun is according to the density of the sunbeams, and is reciprocally proportional to the square of the distance from the body of the sun.

Bentley.

See mystery to mathematics fly.

Pope.

Mad mathesis alone was unconfin'd.

Id.

Beauty is not a quality of the circle. It lies not in any part of the line, whose parts are all equally distant from a common centre. It is only the effect which that figure produces upon a mind, whose particular fabric or structure renders it susceptible of such sentiments. In vain would you look for it in the circle, or seek it, either by your senses or by mathematical reasonings, in all the properties of that figure.

Hume.

MATHEMATICS. This, like many other terms connected with art and science, is of Grecian ori-

gin, and primarily means learning. It came in course of time to be limited to one particular description of learning, much in the same manner and for a similar reason as the English term learning has been appropriated to classical knowledge, or the study and acquisition of the dead languages. Mathematical learning in fact held the same predominant station in the ancient that classical learning has so long held in the modern schools.

It is not possible that a single word should be descriptive of any complex object presented to the mind, whether that object exist in nature independently of the mind, or be merely one of its own inventions. Hence the term mathematics cannot be taken as a definition; nor can the definitions which have been attempted for it be regarded as anything more than approximations to accurate indications. If, for example, we say 'Mathematics is that science which contemplates whatever is capable of being numbered or measured,' or that it is the science of quantity, or a science that considers magnitudes either as computable or measurable, all these, and similar attempts at definition, are essentially faulty, because they are not sufficiently definite and comprehensive. It would perhaps be a nearer approach to accuracy of definition, or rather indication, to say, mathematics is the art of computation and measurement. But this also is defective. The term art, however, is rather more appropriate than the term science; though neither the one nor the other is sufficient of itself for the purpose: for both art and science are necessarily included. Mathematics is neither an art nor a science, but the union of both. We are accustomed to hear of mathematical sciences, knowledge and learning; we never hear, however, of mathematical art; and the expression, no doubt, seems strange.—But this very circumstance proves the importance of our attempt to awaken attention to what may in itself seem of no consequence. We are the unconscious slaves of habit or custom; and the established usage of language is one of the last species of bondage which even a philosophic understanding completely shakes off.

It must be remembered that mathematical science, learning, art, or whatever we choose to call it, is wholly of human creation or invention, as much as a rule, compass, quadrant, or any philosophical instrument, apparatus, or method whatever. It has no prototype in nature : it is merely a philosophical contrivance for the purpose of better understanding and interpreting nature, or of becoming more accurately and intimately acquainted with her. If, therefore, we speak of the science of mathematics, it must be in a different sense from the use of the word when employed in direct reference to nature herself. We may speak of the properties of numbers, and magnitudes, and lines, and angles, just as we may speak of the properties of the rule, the square, the compass ; but these properties are attributes of our own creation, not of the works of God.

Mathematics are commonly distinguished into pure and mixed. Pure mathematics, it is said, consider quantity abstractedly ; and mixed mathematics treat of magnitudes as subsisting in material bodies, and consequently are interwoven every where with physical considerations. This is one of the objectionable distinctions, positions, and definitions, too frequently to be met with in connexion with a science which boasts of accuracy and certainty. The notion of quantity abstractedly, or separately from material bodies and physical considerations, is manifestly absurd ; for where or how can quantity exist or be conceived of as existing but in some material body ? We might philosophise about color, form, or shape, solidity, fluidity, elasticity, gravity, &c. &c., abstractedly from material bodies and physical considerations (as was long indeed attempted), and call this pure philosophy ; but it would be a pure fiction of the brain,—a mere absurdity. If pure mathematics really consisted in such abstractions, they might be defined the science of non-existents ; but, even in the most imaginary quantity of the most absolute abstraction, the imagination (to say nothing of the understanding) of the purest, or most speculative mathematician, must have something of the nature of *materia firma* to rest upon.

There is, without doubt, a foundation in sense and reason for the distinction intended by pure and mixed (that is, between theoretic and practical) mathematics ; but it deserves consideration how far the distinction, as commonly expressed, and other distinctions, definitions, and positions which remain to be noticed, have ministered to false philosophy ; and in what respects Mathematics have retarded, as well as accelerated, the progress of knowledge. An impartial estimate of the merits of mathematical learning shall be attempted at the conclusion of this article, after a rapid sketch has been given of its history. The brief history intended may be conveniently divided into ancient and modern.

THE MATHEMATICS OF THE ANCIENTS.—In contemplating the mathematics of the ancients, our curiosity is naturally invited to their invention or origin ; but origins are a vexatious race of entities, especially if their nativity happened

in the older, or rather early time, of the world. We can ascertain, with a kind of infallible certainty, who obtained the last patent, or made some recent and memorable improvement in any art or science ; but who will give us authentic information as to the original invention or first inventor ? Even as to such recent discoveries or inventions as the mariner's compass, gunpowder, printing, the horologe, the telescope, &c. &c., how much uncertainty mocks our enquiries !

ANCIENT ARITHMETIC.—If we begin with arithmetic, which may be considered the lowest but first branch of the mathematics, we have no means of ascertaining where or how it was invented or brought to the state in which it existed among the ancient Greeks. It is hardly credible that human beings should exist any where, or in any state, intellectually considered, without something deserving the name of arithmetic, that is, an art or method of computation ; and there is as much evidence as the nature of the case requires that it had been carried to some considerable extent at a very early period of human existence.

The Greeks appear to have been the first European people among whom arithmetic existed in any high degree of perfection ; and the evidence seems equally strong that they received it from the Egyptians. Indeed the acknowledgments of the Greeks to the Egyptians for intellectual benefactions are singularly candid and grateful, considering the national peculiarities of the former people ; and supply the most satisfactory of all kinds of evidence on the subject, that the philosophers of Greece were the disciples of those of Egypt. Whether the arithmetic of the Greeks was exactly the same as that of the Egyptians, or in any respect either improved or deteriorated, we have now no means of ascertaining. The probability seems to lie on the side of deterioration rather than on that of improvement ; but if it had not been for the historical justice of the Greeks towards their instructors, and the monuments of their science which have defied the power of time, almost the very name and memorial of the most wonderful nation perhaps, intellectually considered, that ever existed, would have perished from the earth.

We have mentioned the arithmetic of the Greeks as possessing a high degree of perfection ; but this must be taken comparatively, and in reference to a ruder and more defective state of the art or method of computation ; for, in comparison with the modern arithmetic, that of the Greeks was very defective and unavailable. It is very probable, as M. Goguet has remarked, that they used, for some time at least, pebbles in their calculations ; for their verb signifying to compute, or calculate, is formed upon a noun signifying a little stone ; just as our own word calculate, borrowed from the Romans, is from calculus, a little stone or pebble. The letters of the alphabet were indeed used to denote number, but in such a manner as to prove that arithmetical operations must have been exceedingly difficult when carried to any extent, as is abundantly manifest from the treatise of Archimedes concerning the dimensions of a circle. The mechanical contrivance called abacus was em-

ployed, and probably very few if any of the greatest calculators of ancient Greece could compute to any extent without its assistance. Though a very clumsy instrument or method of computation, it was far more necessary and important to the ancient, than logarithmic tables are to the modern mathematician.

Such being the defective nature of the ancient arithmetic, the wonder is not that the higher branches of the mathematics were not carried further or rendered more available for useful purposes, but that they reached such a degree of perfection as they actually attained. The remarks of a contemporary are so much to our purpose that we quote them without hesitation as in perfect accordance with our own opinion. 'To render mathematical speculations of any real use, the numerical solution of problems is indispensable; and in this we have every reason to conclude the ancients were much behind. The want of a convenient arithmetic impeded them greatly in actual calculation, and even obliged them to have recourse to a certain mechanical contrivance called the abacus, as we now see the Chinese use their swan-pan, and the inhabitants of Mexico their knotted strings. Indeed the whole character of their geometry abundantly shows that the rule and compass were actually resorted to in practice; that they employed their constructions not as modern geometers have done, merely to explain the theory and deduce rules of computation, but to perform the computations themselves, and give, by measurement, the length of lines and magnitude of angles. This, though a most rude and troublesome method, might suffice to the more ordinary practical cases; but, when the purposes of a more exact astronomy demanded greater nicety, they would find themselves much embarrassed. The construction of solid figures is next to impossible; and we may reasonably surmise that the first essays of Hipparchus towards a system of trigonometry, consisted in the demonstration of such properties of solid angles and their including planes as would enable him to reduce the usual astronomical computations to the construction of plane triangles; and this again to its most simple case, the right angled triangle, and in point of ultimate difficulty, to the determining of an arc from its chord, and vice versa. Here we think it exceedingly probable that graphical estimations, founded on some mechanical contrivance, might be resorted to. Archimedes indeed, by his quadrature of the circle (the first example of the approximate solution of a difficult problem which deserves the name), had afforded a basis on which a tolerably exact table of chords might have been constructed, his inferior limit differing from the truth only in the fifth decimal, yet there is a difficulty how the ancients could apply this to any useful purpose without a further insight into the artifices of computation than we have any reason to suppose they possessed. The employment of chords, as being more directly and accurately measurable than any other lines in a circle, seems to corroborate this surmise of a mechanical estimation. The remaining fragments of the two first books of Pappus suffice at least to show how incon-

ceivably embarrassing their arithmetical computations must have been.'

ANCIENT GEOMETRY.—The geometry of the ancients is next to be directly considered,—for it has been already indirectly referred to in the foregoing remarks. Here, for the sake of a connected historical view, we may advert to what has been suggested in another part of this work when treating of GEOMETRY. The etymology of the name is an indication of the original intention and application, as well as of the invention of geometry: It strongly corroborates the testimony of Herodotus, Diodorus, Strabo, and Proclus, in ascribing the origin of geometry to the Egyptians; and in affirming that the immediate cause or occasion of its origin was the annual inundations of the Nile. Few of the old adages are more obviously just than that necessity is the mother of invention. Indeed, as some of the greatest inventions ultimately have had the humblest and even most casual beginnings, it is not wholly improbable that geometry may owe its existence to some such circumstance as a graphic or diagrammatic representation or map of the lands adjacent to the Nile. But, whatever be in this, geometry would soon be perceived to be available for other purposes, or to admit of other applications, than those contemplated in its original design; and it would be cultivated as a mental exercise for the sake of mere speculative pleasure by the contemplative and studious who enjoyed leisure, and who were apt to feel that greatest of all miseries (and the most active minds will ever feel it most keenly), 'the misery of not knowing what to do.' If the pure mathematics possess such beauties and charms as those ascribed to them by Dr. Barrow, Dr. Minto, and others, we may well suppose that pure geometry, even in her rudest shape or plainest form, found mathematical lovers in Egypt and Greece, who were not only devoted admirers themselves, but who spared no pains to render her the object of universal admiration. Indeed most of the Greek geometers were a sort of Platonic lovers of the abstract beauty of truth as existing in the properties of lines, angles, &c., apart from all utility.

That the Greeks received geometry from the Egyptians there can be no reasonable doubt; but, as already remarked concerning arithmetic, how far it was actually improved in the hands of the former we have now no means of ascertaining. The Greeks might improve what they had borrowed imperfectly, and yet not carry geometry to a higher degree of perfection than that in which it had previously existed in Egypt. Thales is said to have introduced it into Greece; where it was cultivated by Pythagoras, Anaxagoras, Plato, and others. About fifty years after Plato, and 300 before the Christian era, Euclid of Alexandria is generally believed to have collected together all the theorems which had been invented by his predecessors, and digested them into fifteen books, entitled the Elements of Geometry. Next to Euclid, or whoever was the author of the Elements, stands Apollonius Pergæus, who flourished in the reign of Ptolemy Euergetes (who patronised him) 100 years after Euclid, and 230 before Christ. Apollonius was

one of the greatest geometers and astronomers of antiquity; but of all his works only part of his *Conics* remains; which was first published by Commandinus at Bologna in 1566. About the same time with Apollonius flourished the famous Archimedes of Syracuse, who was usefully prosecuting the mixed, whilst many others were dreaming over the pure mathematics. He has always been regarded as the true founder of the science of mechanics. In his treatise, entitled *Isoporica*, he has given a complete demonstration of the fundamental property of the lever. The theory of the inclined plane, the pulley, and the screw, which was first published in the eighth book of Pappus's *Mathematical Collections*, has likewise been ascribed to Archimedes; and the honor of forty mechanical inventions has been conferred on him by the ancients. The boastful speech about moving the earth was probably an invention or exaggeration of some of his blind admirers; for true science and wisdom are modest.

The next in the line of the great mathematicians of antiquity, whose memorial remains, is Hipparchus, born at Nice in Bithynia, and who died about 100 years before the Christian era. Hipparchus is one of the ancient inventors in science most justly entitled to admiration. If not the very first who reduced astronomy into a regular science, he was the greatest of all the ancient astronomers, whose record has descended to our times. His *Catalogue of Stars* is still preserved in Ptolemy's *Almagest*. Pliny says he foretold the course of the sun and moon for 600 years, calculated according to the different manners of reckoning the months, days, and hours in use among several nations, and for the different situations of places. He also formed the lunar period which bore his name. His *Commentary on Aratus's Phenomena* is extant, a correct edition of which was published by Petavius. Hipparchus may also be regarded as the father of trigonometry, which afterwards became a distinct branch of the mathematics in the hands of the Arabs or Moors.

The next in succession after Hipparchus known to us as a mathematician of eminence is Ptolemy of Pelusium, who lived about the year 138. The Ptolemaic System of the world, which placed the earth as the centre, derived its existence or at least its name from him; and his *Geography*, and a *Treatise on Astrology*, are extant.

After Ptolemy comes Pappus, of Alexandria, and of the fourth century. The most considerable of his works are *Mathematical Collections*; a *Comment on the Almagest of Ptolemy*; and *Commentaries on Aristarchus concerning the Magnitudes and Distances of the Sun and Moon*.

Proclus, the author of *A Commentary on Euclid*, may be considered the last of the ancient or Greek mathematicians. But, before proceeding with our historical view, it will be proper to attempt an estimate of the merits of geometry before it was connected with the modern improvements.

That great stress was laid upon geometrical learning by the ancient philosophers is abundantly

evident, not only from history, but from the single circumstance of Plato having inscribed over the door of his academy, 'Let no one ignorant of geometry enter here.' That geometry had attained a degree of elegance (to use the word so much in vogue with geometers as to have become a kind of cant phrase), in their hands, scarcely to be surpassed, is also abundantly evident from the place which Euclid still holds. Yet it is an established fact that, with all their geometrical attainments and idolatry, the ancient philosophers possessed little or nothing deserving the name of philosophy, but abundance of dignified absurdity and species of sophistry. We shall not stop at present to enquire how far their geometry was innocent or guilty of this; but one thing seems evident, that it was more for show or elegance than of any real utility. It was surely possible for some one ignorant of geometry to have entered the academy of Plato with more real science, sound reason, and true wisdom, than he and all his disciples put together possessed. His sublime mind was no doubt often, at least in imagination, 'abstracted and elevated from sensible matter,' to quote the words of Dr. Barrow, 'distinctly viewing pure forms, conceiving the beauty of ideas, and investigating the harmony of proportions;' yet all this had no necessary connexion with just notions or right reasoning concerning the natures and relations of things existing in the universe, independently of geometry, and of all the properties of lines, angles, squares, circles, and diagrams. Concerning the merits of the ancient geometry, as to any useful applications, we have the following judgment from one whose mathematical authority will not be disputed. 'Among the ancient philosophers whose delight was in reasoning, and who troubled themselves little with any thing else, geometry, while it attained a degree of elegance scarcely to be surpassed, had assumed a form singularly unfavorable to useful applications, where results are to be actually computed, and approximations made. For these purposes the most exquisite geometrical construction is often but the mockery of a solution. But even its elegance was speedily found to desert it when tried on the more difficult enquiries of the modern philosophy, while its application to such researches was attended with a degree of intellectual exertion, a contention of mind, sufficient to deter the boldest reasoner from its use.'

MODERN HISTORY OF MATHEMATICS FROM THE DECLINE OF THE ROMAN EMPIRE, DOWN TO THE PRESENT TIME.—Mathematical learning rather existed than flourished in the Roman empire. It never appears to have been in much estimation with those subduers and masters of the world, the old Romans; for Tacitus informs us that they gave the name of mathematicians to all who were devoted to divination and astrology. Passionately fond as they were of mastery and dominion, they seem to have had no idea that mathematical knowledge is power. And, except in the person of Archimedes, there was little evidence presented to their martial minds to produce such a judgment. It is certainly a remarkable fact, that the mightiest people po-

littically considered, recorded, in the history of the world, did not produce a single mathematician. It is, perhaps, not less remarkable, that the arts and sciences, when ready to perish in Europe, should have found refuge among the Arabian conquerors and the followers of Mahomet; whose Turkish disciples have proved themselves such barbarous enemies of science and civilisation. But, strange as it might at first appear, the Arabs and Moors were not only the means of preserving, but of improving the arts and sciences in general, and mathematical learning in particular.

They had previously received much useful knowledge from India, and they willingly availed themselves of the literary treasures of Greece. Many works of the Greek authors were translated into the Arabic by the most skilful interpreters; and the contents of some of the most valuable, which would have otherwise perished, were by this means preserved. The Arabs do not appear to have any claims to our admiration as inventors, but they have many claims to our gratitude as benefactors, in preserving and conveying to us the intellectual treasures of Greece and India.

In this sudden and temporary elevation of Arabs and Moors, above what may be termed their natural level, much seems ascribable to a few extraordinary persons, possessing at once mental power and political authority; who seem to have been raised up for the special purpose of imparting to modern Europe all the benefits of philosophy; for, almost as soon as they disappeared, their own people relapsed into greater ignorance and barbarity than perhaps at any former period of their history. In the remarkable historical phenomenon which we are now contemplating, we find not only that princes were philosophers, but that almost the only philosophers of eminence were princes; and this singular instance in the history of nations, may, perhaps, be regarded as a striking proof how insecure the dominion of philosophy is, when she holds of the crown, and owes her authority and existence to the palace and the throne. A long line of Almamons or Alphonso's would be as miraculous as the preservation of the Jews. The first of these honored princes was the seventh of the Abassides. He succeeded in 813 to the caliphate of Bagdad; where he founded a university to which he invited able professors to teach the languages and sciences. He calculated a set of astronomical tables, and caused the works of the most celebrated Greek authors to be translated into Arabic by the most competent interpreters. Alphonso, the king of Castile, flourished about the middle of the thirteenth century; and, as justly observed by professor Playfair, 'was remarkable for such freedom of thought, and such boldness of language, as it required his royal dignity to protect.' He applied himself diligently to the study of astronomy; he perceived the inaccuracy of Ptolemy's tables, and endeavoured to correct their errors by new tables of his own. His profane spirit, or boast that he could have given the Author of nature better counsel, may be regarded, perhaps, as levelled at the Ptolemaic system, rather than at the Creator.

We have mentioned Alphonso in connexion with Almamon because the one is related to the other as consequent and antecedent; for Alphonso's philosophic eminence is directly ascribable to the Moors; and because Almamon and Alphonso, Bagdad and Castile, are to be regarded as two remarkable chronological and geographical points in the modern history of the mathematics; or rather in the space occupied by the Arabs and Moors, as the preservers and improvers of mathematical learning.

From the thirteenth to the middle of the sixteenth century, or say, for the sake of memorable association, from the time of Alphonso king of Castile to the time of Cardan mathematical professor of Milan, the learned were diligently recovering the knowledge of geometry, and placing themselves on a level with the state of science which preceded them. The fall of Constantinople, in 1453, contributed very materially to the knowledge of the Greek language in the western parts of Europe, and consequently to an acquaintance with the ancient geometry. The Greek refugees (who had fled from Turkish cruelty), as recently French, Italian, and Spanish refugees in this country, afforded all the facilities of *viva voce* instruction to a speedy and accurate acquaintance with their language. Many ancient classics were searched out and brought forth from the monasteries, in which they had found sanctuary, during that dreary period of ignorance and barbarity, commonly called the dark ages; and, with the general revival of literature which now commenced, the Greek geometers were once more, or rather for the first time in many parts of the west of Europe, read, translated, commented on, and admired.

Thus two distinct streams of knowledge were flowing to us: the one along the southern shores of the Mediterranean from Bagdad, the other along the northern from Constantinople; the one communication entered Europe by the west, the other directly from the east. But the former, though most circuitous in its course, was not only first in the order of time, it was also of most essential importance.

As early as 980 Gerbert, afterwards pope Sylvester II., having learned of the Moors in Spain their system of arithmetic, imparted it to his countrymen the French; and from them it rapidly spread over Europe. This was such an important acquisition as to merit more notice than it usually receives. Indeed, without this (some equivalent method of computation, it is inconceivable that the mathematics could have made much useful progress. And, if we advert to the circumstance which took Gerbert into Spain, we shall perceive what important consequences result from antecedents which seem of themselves too trivial to be worthy of notice. But a thousand monks might have gone into Spain (which even then seems to have been their common haunt and general home), and no such advantage have been received as from one Gerbert. This Gerbert was born in Auvergne of an obscure family, and bred up in a monastery; but his superior talents exciting the envy and hatred of his companions, he withdrew from their society and went to Spain. It was there, as already

intimated, that he learned the arithmetic of the floors, which we now employ. The duke of Barcelona took him after his return from Spain to Italy, where he was noticed by the emperor Otho, who gave him an abbey, which he subsequently quitted and went to Germany as preceptor to Otho III. He was afterwards tutor to the son of Hugh Capet, by whom he was made archbishop of Rheims. By the interest of Otho he gained the papacy in 999, and died in 1003.

The admirable invention introduced by Gerbert, of the decimal arithmetic, consists as every one knows, in the simple contrivance of employing nine significant marks or characters, and making the same mark or character change its signification, according to a fixed rule, when it changed its position, being increased ten-fold for every place that it advanced towards the left. We are so familiar with this simple but refined artifice, as to think little of its wonderful merits as an invention, or of its inexpressible utility in computation. But we have only to compare it with the abacus of the Greeks, the swan-pan of the Chinese, or the knotted cords of the Mexicans to become sensible of its importance.

The Arabs and Moors did not claim the invention of the decimal arithmetic, but confessed that they borrowed it from the Indians; who appear to have possessed it before the time of Pythagoras, who again seems to have learned it when he visited the Brahmins; though he does not appear to have acquired it so perfectly, or to have taught it as fully and openly as Gerbert did to his countrymen after his return home. There has been not a little controversy as to the actual claims of this admirable invention, some contending for the Greeks, and others for the Indians; and perhaps after all neither the one nor the other were actually the inventors. The following seems a candid statement of the question. The Moors and Arabs, by their own unanimous avowal, derived this admirable invention from the Indians, who, there is good reason to believe, were in possession of it from the time of Pythagoras. The story of this philosopher's visit to the Brahmins is well known, and a suspicion may be entertained that his time there was better employed than in picking up the ridiculous doctrine of the transmigration of souls. Boethius relates the singular fact of a system of arithmetical characters and numeration employed among the Pythagoreans, which he transcribes, and which bears a striking resemblance, almost amounting to identity, with those now in use, and whose origin we know to be Indian. The discovery (generally so considered) of the property of the right angled triangle by the same philosopher is a remarkable coincidence. This was known ten centuries before to the Chinese, if we credit the respectable testimony of Gaubil. It was well known to the earliest Indian writers of whom we have any knowledge, and who appear to have derived it from a source of much more remote antiquity. It is scarcely conceivable that a Greek invention, of such extreme convenience as the decimal arithmetic, should have been treated with such neglect, remaining confined to the knowledge of a few speculative men, till, from being communicated as a mystery, it was at

last preserved but as a curiosity: but the aversion of that people to foreign habits will easily account for this on the supposition of its Indian origin. We are then strongly inclined to conclude that in the latter, as well as in the former instance, Pythagoras may have acted only the part of a faithful reporter of foreign knowledge, though the reverse hypothesis, viz. that the first impulse was given to Indian science at this period by the Greek philosopher, might be maintained.

After the introduction of the decimal arithmetic by Gerbert, towards the end of the tenth century, the next important step in mathematical history was the introduction of algebra by Camillus Leonard of Pisa, some say early in the fifteenth, others say early in the thirteenth century. 'As early,' says professor Playfair, 'as the beginning of the thirteenth century, Leonardo, a merchant of Pisa, having made frequent visits to the east, in the course of commercial adventure, returned to Italy enriched by the traffic, and instructed by the science of those countries. He brought with him the knowledge of algebra; and a late writer quotes a MS. of his bearing the date of 1202, and another that of 1228. The importation of algebra into Europe is thus carried back nearly 200 years farther than has been generally supposed; for Leonardo has been represented as flourishing in the end of the fourteenth century, instead of the very beginning of the thirteenth. It appears by an extract from his MS. published by the above author (M. Cossali of Pisa), that his knowledge of algebra extended as far as quadratic equations. The language was very imperfect, corresponding to the infancy of the science; the quantities and the operations being expressed in words with the help only of a few abbreviations. The rule for resolving quadratics by completing the square is demonstrated geometrically. The writings of Leonardo have remained in MS., and the first printed algebraic book is that of Lucas de Burgo, a Franciscan, who, towards the end of the fifteenth century, travelled like Leonardo, into the east, and was there instructed in the principles of algebra. The characters employed in his work, as in those of Leonardo, are mere abbreviations of words. The letters *p* and *m* denote plus and minus; and the rule is laid down, that, in multiplication, plus into minus gives minus, but minus into minus gives plus. Thus the first appearance of algebra is merely that of a system of short-hand writing, or an abbreviation of common language, by employing the initial letters of the words, applied to the solution of arithmetical problems. It was a contrivance merely to save trouble; and yet to this contrivance we are indebted for the most philosophical and refined art which men have yet employed for the expression of their thoughts. This scientific language, therefore, like those languages in common use, has grown up slowly from a very weak and imperfect state till it has reached the condition in which it is now found.

Though in all this the moderns received none of their information from the Greeks, yet a work in the Greek language, treating of arithmetical questions, in a manner that may be accounted

algebraic, was discovered in the course of the next century, and given to the world in a Latin translation, by Xylander, in 1575. This is the work of Diophantus of Alexandria, who had composed thirteen books of arithmetical questions, and who is supposed to have flourished about 150 years after the Christian era. The questions he resolves are often of considerable difficulty: and much address is displayed in stating them, so as to bring out equations of such a form as to involve only one power of the unknown quantity. The expression is that of common language abbreviated and assisted by a few symbols. The investigations do not extend beyond quadratic equations; they are, however, extremely ingenious, and prove the author to have been a man of talent, though the instrument he worked with was weak and imperfect.

There has been considerable controversy respecting the invention of algebra, and whether that of Diophantus is to be regarded as wholly independent of the Hindoo algebra, or related to it as antecedent or consequent, progenitor or offspring. The reader who feels any curiosity on the subject may consult two able articles on Hindoo algebra in the forty-second and fifty-seventh numbers of the Edinburgh Review. The opinion expressed in Brewster's Encyclopædia is, that Diophantus has the merit of independent invention; and that the Arabs (from whom Camillus Leonard and Lucas Pacioli de Burgo received it and brought it into Europe), borrowed their algebra principally from the Greeks assisted by occasional communications with Hindostan. The opinion of the writer of this article is, that what is ascribed to Diophantus was, as well as the Pythagorean arithmetic, of foreign extraction; and that the Arabs received their algebra directly from the same quarter as they obtained by their own confession the decimal arithmetic. But the question is not worth the arguments which might be expended upon it; especially as they would amount after all only to probability, which will be always appreciated differently by different minds, and by the same minds in different circumstances.

It has been already intimated that algebra, as imported into Italy in the thirteenth or fifteenth century, was in a very rude and imperfect state, being little more than the raw material, so to speak, of what now bears the same name. It has been justly remarked that our present algebraic notation (the same holds of all the algebraic discoveries, inventions, methods, arts, or whatever we choose to call them) 'has arisen by almost insensible degrees, as convenience suggested different marks of abbreviation to different authors; and that perfect symbolic language which addresses itself solely to the eye, and enables us to take in at a glance the most complicated relations of quantity, is the result of a series of small improvements made from time to time, some of which have even been forgotten and re-invented; while in no case, till at least within a very short time from the present period, has any general and systematic view of the nature of symbols directed the choice of new ones.'

As Italy was the country which first received algebra in Europe, so there its first and greatest improvements were made. The resolution of equations speedily reached a point at which it still remains stationary. In 1505 Scipio Ferrea discovered the solution of a cubic. This soon led to other important discoveries and improvements.

Algebra owes much to Cardan Tartalea and Louis Ferrari, or rather to their bad passions; for there is but too much evidence that, if they had been better men, they would have been worse mathematicians. We have, in their envious rivalry and malignant contention, a striking instance of good being educed from evil, and proof as convincing as any demonstration, not only that there may be disputes among mathematicians, but that there is no necessary connexion between mathematical eminence and moral excellence. Cardan, the first named of the aforesaid triumviri, stands foremost in the fame which he coveted, or rather in the notoriety which he merited. He was born at Milan or at Pavia in 1501. He took his degree of M.D. at Padua in 1525, and at the age of thirty-three was appointed professor of mathematics at Milan, where he read lectures on medicine. In 1552 he went to Scotland, and cured the archbishop of St. Andrew's of an asthma which had baffled the skill of numerous physicians. He was next at the court of Edward VI., and calculated the nativity of that prince; thence he rambled through various countries, and at Bologna was committed to prison. On recovering his liberty he went to Rome, where, in 1576, he starved himself to death to accomplish one of his own astrological predictions. 'He was a man,' remarks Mr. Playfair, 'in whose character good and ill, strength and weakness, were mixed up in singular profusion. With great talents and industry, he was capricious, insincere, and vain-glorious to excess. Though a man of real science, he professed divination, and was such a believer in the influence of the stars, that he died to accomplish an astronomical prediction. He remains, accordingly, a melancholy proof, that there is no folly or weakness too great to be united with high intellectual attainments.'

Having by importunate solicitations, and after binding himself by promises and oaths to secrecy, obtained some algebraical discoveries from Tartalea, Cardan soon published them as his own. However perfidious this might be, we cannot regret the mortification of Tartalea, who wished to make a mystery of knowledge, and to conceal his discoveries for purposes merely selfish. In consequence of the envious rivalry and mutual challenges between these old friends, now irreconcilable enemies, several important improvements were made in algebra. Louis Ferrari, who had been a pupil of Cardan, accomplished the general resolution of the biquadratic equation by a very beautiful process. The properties of surds too now became much better understood. With Cardan originated the idea of denoting general, or as commonly termed indefinite quantities, by letters of the alphabet. The same method was adopted nearly at the

same time by Stiefel, a German, and it was extended and rendered an essential part of algebra by Vieta in 1600. Stiefel introduced the same characters for plus and minus which are still employed. Soon after this Robert Recorde, an English mathematician, published the first English treatise on algebra, and introduced in it the same sign of equality which is still in use. Vieta may be regarded as the person with whom the language of algebra acquired that perfection which has since rendered it such a powerful instrument of investigation. With him too originated improvements in trigonometry, and his treatise on angular sections was an important application of algebra to investigate the theorems and resolve the problems of geometry.

Algebra is allowed to have been indebted about this period to Albert Girard, a Flemish mathematician, whose principal work, *Nouvelle Invention en Algebre*, was published in 1669. 'He appears to have been the first who understood the use of negative roots in the solution of geometrical problems; and he is the author of the figurative expression which gives to negative quantities the name of quantities less than nothing; a phrase which has been severely censured,' says professor Playfair, 'by those who forget that there are correct ideas which correct language can hardly be made to express.' We will not stop at present to examine Girard's figurative expression, or Mr. Playfair's defence of it.

The person next in order, as an inventor or improver in algebra, is Thomas Harriot, an English mathematician, whose *Artis Analyticæ Praxis* was published after his death in 1631. In this work the author brought the whole theory of equations under one simple and comprehensive view, by his discovery of the composition of polynomials by the multiplication of simple factors; and he introduced the smaller letters of the alphabet instead of the capitals employed by Vieta. This distinguished author was employed in the second expedition sent out by Sir Walter Raleigh to Virginia, and he published an account of that country. He appears from his MSS. to have observed the spots of the sun in December, 1610, only a month later than Galileo. He also made observations on Jupiter's satellites, and on the comets of 1607 and 1618. He was born at Oxford in 1560.

The algebraic analysis was now brought to nearly its present state of perfection, and the remark of professor Playfair in reviewing its slow progress is so worthy of being noted and remembered as to merit transcription. 'I have been the more careful to note very particularly the degrees by which the properties of equations were thus unfolded, because I think it forms an instance hardly paralleled in science, where a succession of able men, without going wrong, advanced nevertheless so slowly in the discovery of a truth, which, when known, does not seem to be of a very hidden and abstruse nature. Their slow progress arose from this, that they worked with an instrument the use of which they did not fully comprehend, and employed language which expressed more than they were prepared to understand;—a language, which,

under the notion first of negative and then of imaginary quantities, seemed to involve such mysteries, as the accuracy of mathematical science must necessarily refuse to admit.' With all our respect and deference we must be allowed to doubt the soundness of the above paragraph as to conception, or its accuracy as to expression. But it has been put down here as a memorandum for future remark.

We have now reached a memorable stage in mathematical history; for we have come to the time of Descartes, and the application of algebra to geometry; which may be emphatically termed a new era. There is some diversity of opinion as to the person who should have the honor of having first applied algebra to geometry. Some would say Vieta, others our countryman Oughtred, whose *Clavis* was specially honored by the great Newton, and who, after having suffered much for his loyalty, is reported to have died of joy in 1660, on hearing that the king was about to be restored; but the greatest number of competent judges would pronounce in favor of Descartes. And when the most liberal allowance is made to the claims of Oughtred and Vieta as to absolute priority, there will be enough of distinction and pre-eminence left to the French philosopher. We will give first the statement of the case by professor Playfair, and then by the able writer of the article mathematics in Brewster's *Encyclopædia*, as we deem it of some importance to fix attention on this memorable epoch. 'The algebraic analysis being brought to nearly its present state of perfection, by the succession of discoveries above related, was thus prepared for the step which was about to be taken by Descartes, and which forms one of the most important epochs in the history of the mathematical sciences. This was the application of the algebraic analysis, to define the nature, and investigate the properties of curve lines, and consequently to represent the notion of variable quantity. The invention just mentioned is the undisputed property of Descartes,' says Mr. Playfair, 'and opened up vast fields of discovery for those who were to come after him. It is often said that Descartes was the first who applied algebra to geometry; but this is inaccurate; for such applications had been made before, particularly by Vieta in his treatise on angular sections.' 'Our countryman Oughtred,' says the writer in Brewster's *Encyclopædia*, 'is usually considered the first who applied algebra to geometry so as to discover new properties. Vieta had, however, before demonstrated by algebraic processes a great number of properties of the chords of multiple arcs, which form to this day a very important part of the theory of angular sections. The use of the negative roots of equations in the solution of geometrical problems was clearly pointed out by Girard, though Montucla has (in express contradiction to his own words when speaking of that geometer) attributed it positively to Descartes. The latter, however, has claim enough on the admiration and gratitude of mathematicians, in his method of representing the characterising property of a curve by an equation between two variable magnitudes. This great step, which

brought at once the whole of geometry under the dominion of symbolic analysis, was made in his geometry, published in 1637. The revolution so produced, in the way of conceiving geometrical questions, can be compared to nothing but that which the invention of logic produced in the ancient methods. The comprehensive genius of Descartes immediately felt the whole force of his discovery, and hastened to apply it to problems then regarded of the greatest difficulty and generality, among which were the methods of drawing tangents to all sorts of curves, and the general theory of maxima and minima.

The period at which Descartes lived was pre-eminently the age of distinguished philosophers. Bacon died in 1626, eleven years before the geometry of Descartes was given to the world; Kepler in 1630; Galileo (whom Descartes visited at Florence) in 1642; Gassendi in 1655, just five years after Descartes; and the intellectual Leviathan Hobbes, aged ninety-one, in 1679.

Of the mathematical contemporaries of Descartes who contributed their respective shares of discovery, invention, or improvement, were Cavalieri, a disciple of Galileo and professor of astronomy in Bologna, who published his *Method of Indivisibles* in 1647; Pascal the celebrated author of the *Provincial Letters*, pronounced by Boileau and Voltaire the finest productions in the French language; Roberval, and above all the others just named Fermat, the rival of Descartes. It could be wished that the rivalry which existed between these two great mathematicians had been less, but there was, unhappily for the dignity of philosophy and for the honor of the pure mathematics, too much jealousy on the one side and too much envy on the other. We would not liken Descartes and Fermat to Cardan and Tartalia; but we regret that they were in any measure actuated by the same spirit.

Opinion is divided concerning the amount of Fermat's claim to the admiration and gratitude of mathematicians. According to La Grange and La Place he is to be regarded as the inventor of the differential calculus. The former says, 'On peut regarder Fermat comme le premier inventeur des nouveaux calculs:' the latter, 'Il paroît que Fermat, le véritable inventeur du calcul différentiel, l'ait envisagé comme un cas particulier de celui des différences.' These are high authorities, but we haughty islanders, so proud of our Cambridge and boastful of our Newton, are unwilling to bow to their decision, and ascribe it to national partiality.

Before advancing to the next memorable stage in the history of the mathematics, and to the distinguished names of Newton and Leibnitz, it will be proper to notice an arithmetical invention, to which, however, we can afford less time and space than its importance merits. The reader must be aware that we allude to the invention or (if it be thought the more appropriate term) discovery of logarithms by Napier of Merchiston early in the seventeenth century. By this time calculations connected with astronomy, &c., had become excessively burdensome,

and Napier applied his inventive mind to discover a remedy for the evil. In the course of his attempts he perceived that, whenever the numbers to be multiplied or divided were terms of a geometrical progression, the product of the quotient must also be a term of that progression, and must occupy a place in it indicated by the places of the given numbers, so that it might be found from mere inspection, if the progression were far enough continued. The resource of the geometrical progression was plainly sufficient when the given numbers were terms of that progression; but, if they were not, no advantage seemed derivable from it. Napier, however, perceived, though it was by no means obvious, that any numbers whatever might be inserted, and have their places assigned in the progression. The next difficulty was to discover the principle, and execute the arithmetical process, by which, the places were to be ascertained. It is in these two points that the peculiar merit of the invention consists; and when all the circumstances are considered it discovers such inventive power as has been rarely surpassed. The able assistance of Briggs, Gresham professor of mathematics, was willingly given to Napier, and the former has no small merit, and is entitled to much praise in perfecting the invention of logarithms. Subsequent improvements in science, instead of offering any thing that could supersede this invention, have only enlarged the sphere of its utility. It was a most invaluable present to the calculator, and logarithmic tables have been applied to numberless purposes not contemplated when they were first constructed. To conclude this notice of Napier in the elegant language of his countryman Playfair, from whom indeed we have adopted the above with some slight alteration and abridgment; 'Even the sagacity of Napier did not see the immense fertility of the principle he had discovered; he calculated his tables merely to facilitate arithmetical, and chiefly trigonometrical computation, and little imagined that he was at the same time constructing a scale whereon to measure the density of the strata of the atmosphere, and the heights of mountains; that he was actually computing the areas and lengths of innumerable curves, and was preparing for a calculus, which was yet to be discovered, many of the most refined and most valuable of its resources. Of Napier, therefore, if of any man, it may safely be pronounced, that his name will never be eclipsed by any one more conspicuous, or his invention superseded by any thing more valuable.'

As coming after Descartes and Fermat, and immediately preceding Newton and Leibnitz, some notice is due to the Dutch geometers Hudde, Huygens, and Sluse, and to our own countrymen Wallis and Barrow; though it does not appear that any thing very marked, or much of the nature of material improvement, is attributable to them, except Wallis, Savilian professor of geometry at Oxford, and who died in 1703. He was a mathematician of the highest rank, and of great originality. 'In his *Arithmetica Infinitorum* is discovered that firm reliance on the law of continuity in analytical expressions, which has since conducted to so many brilliant general-

isations.' The above was the work, next to the elements, which was first put into the hands of Newton; and from which he may be said to have started at once in the career of discovery. Barrow was an eminent mathematician; but he is more distinguished in mathematical history by having been the tutor of Newton and his predecessor in the Lucasian professorship at Cambridge, which he resigned to his illustrious pupil in 1669.

We have spoken of Newton as starting at once in the career of discovery; and the reports which we have of his mathematical movements are not only astonishing, but almost incredible to common minds. He seems to have taken up the Elements of Euclid, the Arithmetica Infinitorum of Wallis, the Geometry of Descartes, the Clavis of Oughtred, and all such books so repulsively unintelligible at first to other mortals, with a sort of mathematical instinct, or intuitive penetration and sagacity. What others have slowly and laboriously to learn, he could read off at first sight.

But notwithstanding his wonderful powers, and 'the mighty fabric of his mathematical discoveries,' in which is included his 'binomial theorem, which proved the key to the whole doctrine of series; his fluxions, or the infinitesimal analysis, and his being in possession 'so early as 1669 of those general analytical methods which wanted only refinement, and reduction to a regular system of calculation, to be the differential calculus; a mighty rival of our immortal Newton presently appeared in the person of Leibnitz. And, unhappily for the honor of the pure mathematics, this is a third instance in tracing their history of unseemly rivalry and angry contention; for it would seem that if any extraordinary discovery is to be brought forth in a science, which above all others ought to be peaceful and undisputations, it must be attended with stormy controversy. As we said in the case of Descartes and Fermat, so here, we would not liken Newton and Leibnitz to Cardan and Tartalea, but we regret that there should have been any thing connected with the latter bearing the slightest resemblance to the temper and conduct of the former. The respective adherents of Newton and Leibnitz were however seen ranged in battle array, hurling mutual challenges and defiances, criminations and recriminations. And now at last, after much waste of mathematical talent, and much loss of temper, they have come to a drawn battle, and are willing to divide the honor, and to consent to peace on the condition that England and Germany shall remain in statu quo, and that the distinct independence of each shall be mutually acknowledged and respected. The differential calculus, which un-mathematical persons might suppose to have its name from the difference created by it, is now generally allowed to have been the independent invention both of Newton and of Leibnitz. It is amusing to see not only England and Germany contending for this honor, but France advancing her somewhat late claim. According, however, to La Grange and La Place, their countryman Fermat was the inventor of the differential calculus. If, as we said in the case of Descartes, and the

application of algebra to geometry,—if the absolute invention of this new calculus were taken from both Newton and Leibnitz, enough of pre-eminence and enough of claim on the admiration and gratitude of mathematicians would be left to each. Leibnitz has certainly this advantage over our illustrious countryman, that there was less appearance of reserve, mystery, or secrecy, more of frankness and straight-forwardness about him,—for he was eager to impart, and lost no time in imparting his invention and all its benefits to the world. His public promulgation of the differential calculus was made in the Leipsic acts in 1624. These acts were now continually teeming with valuable papers, improving the integral calculus also: and much do we owe to Leibnitz and the Bernoullis, his disciples and friends.

The merits of Newton are so generally known, for they are 'familiar in our mouths as household words,' and so duly appreciated, that it would be a kind of supererogation to dwell upon them. Perhaps, indeed, there is something of the nature of idolatry and superstition about our admiration and praise of this great man. But any endeavour to moderate this excess of estimation might seem envy of Newton's fame, or the petty, peevish spirit of an artisan towards an Aristides. His Principia, published in 1687, is, we think, justly pronounced 'an immortal work,' which, if all his other claims to the title were deficient, must for ever stamp him the profoundest of geometers, as well as the first of natural philosophers.' It was particularly from the time of Newton that the real value of mathematical investigation in natural philosophy appeared. And from this memorable epoch the mixed mathematics have received the attention which their utility merits. Newton, therefore, is justly placed by the side of Bacon among philosophers. Their names are associated in our habitual thoughts, and united in our distinguishing praise of the great men who have honored England and benefited mankind.

The controversy respecting the claims of Newton and Leibnitz to the honor of inventing the differential calculus caused a disruption and temporary estrangement between the English and continental mathematicians. 'They communicated little with one another,' remarks Mr. Playfair, 'except in the way of defiance or reproach; and, from the angry or polemical tone which their speculations assumed, one could hardly suppose, that they were pursuing science in one of its most abstract and pure forms.' The consequences of this unfortunate difference about the differential calculus is admitted to have been very unfavorable for a time to mathematical progress in this country, and the writer just quoted remarks, 'the new analysis did not exist every where in the same condition or under the same form; with the British and continental mathematicians it was referred to different origins; it was in different states of advancement; the notation, and some of the fundamental ideas, were also different. Though the algorithm employed, and the books consulted on the new analysis were different, the mathematicians of Britain and of the continent had kept pace very nearly with one another during the period now treated

of, except in one branch, the integration of differential or of fluxional equations. In this our countrymen had fallen considerably behind; and the distance between them and their brethren on the continent continued to increase, just in proportion to the number and importance of the questions, physical and mathematical, which were found to depend on these integrations. The habit of studying only our own authors on these subjects, produced at first by our admiration of Newton, and our dislike to his rivals, and increased by a circumstance very insignificant in itself, the diversity of notation, prevented us from partaking in the pursuits of our neighbours; and cut us off in a great measure from the vast field in which the genius of France, of Germany and Italy, was exercised with so much activity and success. Other causes may have united in the production of an effect, which the mathematicians of this country have had much reason to regret; but the evil had its origin in the spirit of jealousy and opposition which arose from the controversies that have just passed under our review. The habits so produced continued long after the spirit itself had subsided.

Such were the results of the differential war, and of our high admiration of Newton. The whole continent was against us; and it appeared in the end that the continent was more independent of England than she of the continent; but with Newton as her prime minister, or commander-in-chief, she was prepared to contend against the whole world.

It is probably owing to the gigantic dimensions and overawing superiority of the intellect of Sir Isaac Newton, that we have had no mathematicians of remarkable stature after him. His immediate successors were scarcely tall enough to measure his height, or but just able, like good William Whiston, to read lectures on the *Principia*. The truth is, we have much reason to make frequent and emphatic mention of the immortal Newton; nor is there any thing to distract and divide our attention, or to prevent us from consecrating the whole force of our admiration upon one object. Brook Taylor secretary to the royal society, and Roger Cotes Plumian professor of astronomy and experimental philosophy at Cambridge, both contemporaries of Newton, are not to be passed by without some notice; but they are unknown to fame; and by the admission of the few who have been at the trouble to read them, or who are disposed to praise them as profound, they are both acknowledged to be obscure. The former published his *Method of Increments* in 1715, and the *Harmonia Mensuratum* of the latter appeared in 1722. Cotes died in 1716, Newton in 1726, Taylor in 1731. A [blank] theorem has the name of Taylor attached to it, and is deemed of some importance in mathematical advancement.

The change which had by this time been made in the mathematics amounted to a kind of revolution, though it is not yet determined who had the greatest hand in bringing it about. Much is doubtless due to Newton, much to Leibnitz; but more to time 'the greatest of all innovators.' If the mathematical world had not been already almost, if not altogether, in possession of what

is now called the differential calculus, it is hardly conceivable that there should have been so much controversy about its origin or invention, that it should be claimed by England, Germany, and France too, or that it could possibly be a moot point, whether Newton, Leibnitz, or Fermat has the best claim in this chancery suit.

The differential calculus ought to be of much importance, for we not only find an extraordinary combustion of passion and commotion of controversy respecting its actual origin, but much opposition made to its very existence. The remarks of Mr. Playfair are so just and so applicable, in reference to any revolution, reformation, or extraordinary improvement in mathematical science, that we must again undertake to transcribe them.

'It must not be supposed that so great a revolution in science, as that which was made by the introduction of the new analysis, could be brought about entirely without opposition, as in every society there are some who think themselves interested to maintain things in the condition wherein they have found them. The considerations are, indeed, sufficiently obvious, which, in the moral and political world tend to produce this effect, and to give a stability to human institutions, often so little proportionate to their real value, or to their general utility. Even in matters purely intellectual, and in which the abstract truths of arithmetic and geometry seem alone concerned, the prejudices, the selfishness, or the vanity of those who pursue them, not unfrequently combine to resist improvements, and often engage no inconsiderable degree of talent in drawing back instead of pushing forward the machine of science. The introduction of methods entirely new must often change the relative place of the men engaged in scientific pursuits; and must oblige many, after descending from the stations they formerly occupied, to take a lower position in the scale of intellectual advancement. The enmity of such men, if they be not animated by a spirit of real candor, and the love of truth, is likely to be directed against methods by which their vanity is mortified and their importance lessened.'

The above quotation deserves to be inscribed not only on the porch of every academy (where Plato had his memento of the importance of geometry); but on the gates of every college, city, and town, on the entrance to every hall of justice and every court of judicature. The able and elegant writer adds: 'though such changes as this must have every where accompanied the ascendancy acquired by the new calculus, for the credit of mathematicians, it must be observed, that no one of any considerable eminence has had the misfortune to enrol his name among the adversaries of the new science; and that Huygens, the most distinguished and most profound of the older mathematicians then living, was one of the most forward to acknowledge the excellence of that science (method would surely be the more appropriate word), and to make himself master of its rules, and of their application.' This excellent Dutchman and eminent mathematician visited England in 1661, and was chosen fellow

of the Royal Society. He died at his native place, he Hague, in 1695, about a year before Newton was made master of the mint, and resigned his professorship to his disciple William Whiston.

The new analysis or differential calculus was, however, stoutly opposed. Nieuwentyt, a Dutch philosopher and mathematician of some eminence, objected to the explanation of Leibnitz, and to the notions of quantities infinitely small. Leibnitz replied, but in a manner not quite satisfactory, as admitted by Mr. Playfair. But Hermann and Bernouilli are considered as completely defeating the adversary of the differential calculus. Rolle, a French mathematician, was a more powerful opponent; but he too was vanquished by Varignon and Saurin.

The new analysis or differential calculus was next attacked by the distinguished Berkeley bishop of Cloyne, in his publication entitled the *Analyst*; in which he professes to prove that the mathematicians admit mysteries, and even falsities in science, particularly in their doctrine of fluxions, or, as now called, the new analysis, the differential calculus, &c. &c. Berkeley maintains that the said differential calculus, new analysis, or doctrine of fluxions, is inaccurate in its principles; and that if it ever lead to true conclusions, it is from an accidental compensation of errors that cannot be supposed always to take place. No one who knows Berkeley's ability requires to be told that the *Analyst* is a masterly production; nor can some of his arguments and charges be fairly met; for if the mathematicians do not receive mysteries and falsities too, or absurdities in language at least—what are mysteries? or what are absurdities? The *Analyst* contains wit as well as argument. Mr. Playfair is compelled to do something like justice to its acute and masterly author. 'The argument is ingeniously and plausibly conducted,' he says, 'and the author attempts ridicule with better success than could be expected from the subject; thus, when he calls ultimate ratios the ghosts of departed quantities, it is not easy to conceive a witty saying more happily fastened on a mere mathematical abstraction.' Mr. Playfair with all his differential jealousies and partialities, and persuasion that there are correct ideas which correct language can hardly be made to express, admits that the defenders of the calculus did not always argue the matter fairly, or exactly meet the reasoning of their adversary.

'The true answer to Berkeley,' he adds, 'was, that what he conceived to be an accidental compensation of errors was not at all accidental, but that the two sets of quantities that seemed to him neglected in the reasoning were in all cases necessarily equal, an exact balance for one another. The Newtonian idea of a fluxion contained in it this truth, and so it was argued by Jurin and others, but not in a manner so logical and satisfactory as might have been expected. Perhaps it is not too much to assert, that this was not completely done till La Grange's Theory of Functions appeared. Thus, if the author of the *Analyst* has had the misfortune to enrol his name on the side of error, he has also had the credit of proposing difficulties of which the complete solution is only to be derived from the highest improvements of the calculus.'

After Newton and Leibnitz, the two mathematicians of greatest name are Euler, and D'Alembert. The former, the son of a Protestant minister, was born at Basil in 1707, and received his education at the university of that city with a view to the church; but he devoted himself to mathematical studies under the famous John Bernouilli. In 1727 he followed his friends Hermann and Daniel Bernouilli to Petersburg, and was associated with them there in the mathematical professorship. In 1741, at the invitation of the king of Prussia, he went to Berlin, where he remained twenty-five years, and then returned to Petersburg, at which place he died in 1783, the same year in which D'Alembert departed this life.

Some opinion may be formed of Euler's mathematical distinction from the number of prizes obtained by him from the French Academy of Sciences: one for a Memoir on Fire; another he divided with Maclaurin and Daniel Bernouilli on the Flux and Reflux of the Sea; another for three memoirs on the Inequalities of the Motions of the Planets; and two others for solutions of questions on the Theory of the Moon. Having spoken of his contemporaries, Clairault and D'Alembert, the able writer of the article mathematics in Brewster's *Encyclopædia*, adds, 'A happy medium between the defects, we ought rather to say a happy combination of these two very opposite geniuses, and endowed with perfections peculiar to himself, was Euler. Of his admirable qualities as a man we have striking proofs; as a mathematician, to all the perseverance of the most determined calculator, he united a vastness of conception which the wildest speculator might envy, and a restless activity and variety of inventive power of which human nature has perhaps afforded no other instance, and which never left him at a loss for means to accomplish his immediate object, though he occasionally suffered himself to be hurried aside by it from the steady pursuit of his more remote one. There are few of the great ideas which have directed succeeding analysts in these difficult researches, which Euler did not first strike upon or divide the merit of their invention.'

Euler's attention seemed directed at one and the same instant to every part of mathematical science, and as his mind was rapid and comprehensive so it was patient and indefatigable in its application. In total blindness, and under pain, he carried on his usual operations. There were not a few great mathematicians of the same time, as D'Alembert, Clairault, Maclaurin, Bernouilli, and others; but the greatest of all by far was Euler. Besides the memoirs already alluded to, he wrote many others; *Opuscula Analytica*; *Introduction to the Analysis of Infinitesimals*, &c. Few men have done so much for those who were to come after as this extraordinary individual.

The next in rank of the mathematical contemporaries and compeers is without doubt D'Alembert, though Clairault almost divides the honor with him, of ranking second to Euler. Clairault was the more profound calculator, but D'Alembert possessed more variety of excellence, 'he was a man of extreme acuteness and subtlety of

reasoning, and possessed a peculiar talent for comparing and estimating methods—a kind of intuitive insight into the advantages and disadvantages of the various lights in which a subject might be considered, and a power of predicting, as it were before hand, the effect of a long train of analytical operations. A severe and unsparring critic of the methods of others, he was yet not peculiarly happy in expressing his own; and in his mathematical writings the classical elegance of his language is often strongly contrasted with the obscurity and want of symmetry of his analysis.

D'Alembert is a remarkable instance of the union of mathematical and literary eminence; or rather, perhaps we should say, of that versatility of genius, and variety of attainment and excellence, so much more characteristic of the French than of any other people, and still more of their mathematicians than of those of any other nation. The same person who is one while absorbed in mathematical abstractions and philosophical reasonings, is the next busied with Diderot in compiling the celebrated *Encyclopédie*, or in writing history and biography. He could by turns write treatises on Dynamics, and on the Theory of Winds, solve the problem of the precession of the equinoxes, write philosophical miscellanies, and the Elements of Music. To us the varied attainments and excellencies of a French mathematician seem almost incompatible with one another. If he has not the magnitude or profundity and altitude of a Newton, he has infinitely more of multiformity. In this even a Leibnitz, with all his versatility of genius and diversity of mental character, must yield to a D'Alembert; nor is this individual to be considered as an extraordinary phenomenon; he is only a striking instance and remarkable specimen of his countrymen. Pascal, Maupertuis, Condorcet, and others are better known as elegant literateurs, and eloquent writers, than as eminent mathematicians. D'Alembert's good old nurse tartly told him on a particular occasion, 'You will never be any thing but a philosopher, who is one that is neglected whilst living, and praised when dead.' And she was right in part, for D'Alembert was neglected so long as he was merely a philosopher or mathematician; but time proved that the shrewd old Frenchwoman, with all her knowledge of the world, was out in her *à priori* reasoning as to D'Alembert; for it was demonstrated that he could become almost every thing.

Clairault has been already mentioned in connexion with D'Alembert; and they may be considered as rivals; at least D'Alembert was evidently jealous of Clairault, and not without reason, being actuated like most other common mortals, and even uncommon mathematicians, quite as much by selfish ambition as by the pure love of truth. Clairault, however, though more profound perhaps, was more limited, less comprehensive, and more exclusively a mere mathematician than D'Alembert. Consequently he is hardly known out of the mathematical world. He is an instance of extraordinary precocity connected with progressive maturity; for his early attainments were not, as in so many cases, successful blossoms preceding permanent barren-

ness of intellect, or stationary mediocrity. He was born at Paris in 1713, six years later than Euler, thirteen later than Daniel Bernouilli, nineteen later than Maclaurin, and four earlier than D'Alembert. At the age of four years he could read and write; at nine he made some progress in algebra and geometry, and solved several difficult problems. In his eleventh year his *Memoir on Curves* appeared in the *Miscellanea Berolinensia*, with an honorable certificate of the Academy of Sciences. That learned body admitted him an associate at the age of eighteen, and he was one of the academicians who went to the North to measure a degree for ascertaining the figure of the earth. He wrote *Elements of Geometry*, and of *Algebra*; a *Treatise on the Figure of the Earth*; *Tables of the Moon*, &c., and died in 1765 in the prime of life and vigor of his faculties.

The distinguished Maclaurin, whom we have connected with Clairault as coming into the world nineteen years earlier, and who is memorably associated with Euler and Daniel Bernouilli by having divided with them the prize on the Flux and Reflux of the Sea awarded by the French Academy of Sciences, was born at Kilmoddan in Scotland, in the year 1698, and educated at the University of Glasgow, where he applied ardently to the study of the mathematics. In 1717 (the year of D'Alembert's nativity), and at nineteen years of age, he obtained the mathematical professorship in the Marischal College of Aberdeen; and two years afterwards was chosen fellow of the Royal Society. In 1725 he succeeded Mr. James Gregory in the mathematical professorship in the University of Edinburgh. In 1742 he published his *System of Fluxions*, the most considerable of his works. Three years after having been active in fortifying Edinburgh against the rebels, and thus becoming a marked object of their resentment, he fled for safety into England, and took refuge with archbishop Herring at York. Whilst yet in the midst of life and full vigor of all his extraordinary mathematical powers he died of dropsy in the following year 1746.

Maclaurin was not only a great mathematician, but both morally and intellectually considered a great man. His peculiar merit as a philosopher was, that all his studies were directed to general utility; and in many places of his works are found applications of the most abstruse theories to practical purposes for the improvement of useful arts and sciences. If England glories in her Newton; Germany in her Leibnitz; France in her Descartes, Fermat, D'Alembert, La Grange, and La Place; Switzerland in her Euler and Bernouilli; Italy in her Galileo, and Cavalieri; Holland in her Huygens; Scotland needs not be ashamed to glory in her Maclaurin.—And, instead of looking with jealousy or scorn on the fame of this great and good man, we glory in him too, as an honor to the age in which he lived, and to our own distinguished island; and as a lasting monument of satisfactory proof that Newton, though the greatest, was not the last of British mathematicians worthy of ranking with the most honored names of the most distinguished countries. Besides the work

already noticed, Maclaurin wrote several papers in the Philosophical Transactions; Geometria Organica; on the Percussion of Bodies; a Treatise of Algebra; and an Account of Sir Isaac Newton's Philosophical Discoveries.

Daniel Bernouilli merits honorable mention in connexion with Euler, D'Alembert, Clairault, and Maclaurin. He was son of John Bernouilli, who was the brother and pupil of the distinguished James Bernouilli of Basil, and tutor of Euler, and who formed an intimacy with Boyle and other great men, when on a visit here in the course of his travels. About 1684 Leibnitz published in the *Acta Eruditorum* at Leipsic some essays on his new calculus differentialis, but without discovering the method. James Bernouilli and his brother John found out the secret, for which they received the thanks and friendship of Leibnitz. In 1687 James Bernouilli was appointed professor of mathematics in the University of Basil; in 1689 he was chosen member of the Royal Academy at Paris; and he died in 1705, two years after the period of Newton's resigning his professorship at Cambridge to Whiston, and eleven years prior to the death of Leibnitz.

Daniel Bernouilli, nephew of James, and son of John, was born at Groningen (where his father was some time mathematical professor) in 1700. After travelling through several countries of Europe he settled at Basil, where he became successively professor of physic and of philosophy. He gained and divided ten prizes from the academy of sciences, which were contended for by the greatest mathematicians in Europe. He divided one we have seen with Euler and Maclaurin; and in 1734 he divided one with his father, which we grieve to relate caused a breach of natural affection. In 1748 he succeeded his father in the academy of sciences; and in 1782 he followed him to the grave: a year later than Euler and D'Alembert went also to the house appointed for all living. Besides those above noticed, there is Nicholas Bernouilli also of very high eminence and who is justly allowed to have contributed much to the recent mathematical improvements, particularly the discovery of the equations of condition, which opened the way to the partial differential calculus. It would be impossible, however, within our limits, to point out what Euler, D'Alembert, Clairault, Maclaurin, and the Bernouillis have actually done; or to show how much they co-operated in carrying forward the mathematical art or science beyond the state in which they found it prepared for them by their predecessors.

We proceed now to the last step of our progression, and to the distinguished names of La Grange and La Place. These pre-eminent geometers were beginning to appear before Euler, D'Alembert, and the last of the Bernouillis had quitted this mortal stage. When about to treat of the new geometry, Mr. Playfair says, 'Considering some sort of subdivision as necessary, and observing in the interval which extends from the first of Newton's discoveries to the year 1818, three different conditions of the physico-mathematical sciences, well marked and distinguished by great improvements, I have divided the above

interval into three corresponding parts. The first of these reaching from the commencement of Newton's discoveries in 1663 to a little beyond his death, or to 1730, may be denominated from the men who impressed on it its peculiar character, the period of Newton and Leibnitz. The second, which for a similar reason I call that of Euler and D'Alembert, may be regarded as extending from 1730 to 1780; and the third, that of La Grange and La Place, from 1780 to 1818.'

The above is, perhaps, as near an approximation as may be to accuracy of demarcation on such a fluxionary subject; for it is impossible to fix or find a point of absolute certainty, where a modifying process is constantly but gradually and silently at work. As early, however, as 1767, La Grange read a memoir to the academy, impugning the authority of Fontaine's fluxio-differential calculus; and in his memoir, which appeared in the Berlin Memoirs for 1770, he annulled poor Fontaine's claim to the discovery of the equation of condition into a negative quantity, and assigned that claim perfect and entire to Nicholas Bernouilli. Whether rivalry or contempt of Fontaine sharpened the mathematical wits, and spirited the analytical exertions of La Grange, it is not worth while to conjecture; but it is evident that he was already a man of weight and influence. Here we again avail ourselves of the assistance of an able writer, not a few of whose remarks we have already adopted: 'Analytical geometry, properly so called, which proceeds upon the sole consideration of the data of the question put into symbolic language, making no preparatory constructions, and either dispensing altogether with the use of diagrams or employing them merely to assist the imagination in its conception of the data-geometry in this state, is due solely to La Grange. That great man, in his memoir on pyramids (in the Berlin Memoir for 1773), first showed the practicability of treating the most complicated questions of solid geometry in this way; and, what is very remarkable, this mode of proceeding, instead of inducing obscurity, as might at first be expected, is remarkable for the luminous and distinct conceptions it gives of geometrical questions. The principal reason of this is, the extraordinary symmetry which symbolical expressions, properly constructed, assume in geometrical enquiries. This it is which renders them easy of management, and at the same time facilitates their interpretation into geometrical language in a remarkable degree, rendering it indeed so obvious, that it may generally be carried on as a collateral process with the algebraic reason.'

There is no author whose writings furnish more striking and beautiful examples of this symmetry in his formulae, which speaks to the eye, and enables us almost to predict the results without executing the operations required, than La Grange. Those whose enquiries have been confined within what we may now fairly call the narrow circle of the ancient geometry, may reject as artificial such means of discovery as depend rather upon dexterity in the management of symbols, than on that direct contention of mind they have been accustomed to consider as

inseparable from the abstruser parts of it; but to one familiar with the difficulties with which modern enquirers have to contend, and whose object is only to multiply the number of known truths, and to arrive at results by the shortest and least troublesome path, it will be quite superfluous to enter into any defence of the method which is now universally adopted. If the general idea of Descartes, which reduces the nature of every curve to an algebraic equation, has been the source of all the power which analysis possesses in geometrical enquiries, that of determining the position of every point in space by co-ordinates at right angles to each other, which Maclaurin first brought into general notice, by showing its utility in physico-mathematical researches, has proved the origin of all its refinement.

The claims of La Grange to modifying and improving agency in the mathematical art and science (we know not how to express our idea better), as now existing, are, by the same writer carried still farther back or higher up. 'A more consummate analyst than Clairault—a more profound reasoner than D'Alembert—a more comprehensive genius than Euler, and, though less exuberantly inventive, more perfect and effective in his inventions, had now commenced his career. Already, in 1764 (in a Memoir on the Libration of the Moon), La Grange had begun to avail himself of that powerful principle of virtual velocities. A fresh impulse seemed now to have been given to science, and from this period scarcely a year passed unsignalled by some new and important discovery in the system of the world; and, by the emulous but united labors of La Grange and La Place, the state of mechanical science was by degrees brought to that pitch of perfection as that the *Mécanique Analytique* of the former, and the *Mécanique Celeste* of the latter, could exist and be appreciated. The first of these immortal productions, which appeared in 1788 (precisely a century after Newton first rendered dynamics a science), is a compendium of the general formulæ and analytical artifices necessary for the treatment of every problem which can be proposed on the equilibrium or motion of matter. The principle of virtual velocities, translated into an equation by means of the calculus of variations, and extended by the help of D'Alembert's principle to cases of motion as well as rest, is made to afford a simple and expressive formula, embracing every effect the agency of mechanical power, under whatever variety of combinations, can produce. A uniform train of analytical processes is there exhibited, adapted to the particular cases of the greatest importance or most frequent occurrence, by which the consequences of this fundamental equation are developed in succession, and reduced, en dernière analyse, to the equations of total or partial differentials, on whose integration the solution of the problem radically depends.'

Having made free use of this writer's remarks as well as of Mr. Playfair's, and feeling great obligation to both, a few words at parting may be indulged respecting their comparative merits, and their claims to our gratitude. Mr. Playfair is now beyond the reach of criticism, and alike deaf to earthly praise and blame; but his me-

mory is embalmed in our esteem, and we should reproach ourselves as guilty of something more criminal than a wanton violation of the old rule of speech concerning the dead, if we were to drop a single word from our pen really intended or calculated to lower him in general estimation. As to our unknown, and, we trust, living benefactor, he is more capable of instructing us than we are of presenting any important suggestion to him; for we would be glad to possess a moiety of his science, and the chief motive of this valedictory notice is, that we may be excuplated from all imputation of even seeming to clothe ourselves with the honors of others, by borrowing from them without due acknowledgment.

Mr. Playfair's historical view of the mathematics, and that given in Dr. Brewster's *Encyclopædia*, are both highly excellent; but they possess different kinds of excellence. The former is better adapted to the general reader; the latter to the laborious enquirer after minute and full information; the former is more elegant and philosophic; the latter is more able and scientific. We could wish that the writer of the former had aimed less at elegant writing, and that the writer of the latter would attend more to composition. He is not chargeable with verbiage or elegant expletives; but there is occasionally some deficiency of precision and perspicuity, of force and simplicity. We submit, with much respectful deference and grateful desire of rendering some service to a benefactor, whether his own excellent remarks respecting the importance of simplicity, clearness, and symmetry in analysis may not hold of synthesis also, or be transferred to composition. We quote his own words, when speaking of the principle which would alone have immortalised the name of D'Alembert, and which put a final end to all difficulties in the science of dynamics:—'The principle, as it is now usually stated, appears of such elementary simplicity, that we wonder it should ever have proved of such momentous importance; and it is only when we know that men of the greatest genius were embarrassed by difficulties of which, in consequence of it, we now hear no more, that we can be brought to estimate its value. It is, in fact, a striking instance of the influence the manner of wording an obvious truth may have on its applications.'

A cursory retrospection, of what we may term our mathematico-historical journey, suggests some reflections. It has often been remarked that great men exist about the same periods, or appear successively in groups, with wide spaces or long intervals between one group and another. We may remark also that they not only come in clusters, but that there are usually two of the cluster greater than the rest. Imagination indeed can do much in these matters; for we are naturally fond of the striking and the picturesque. But the eminent mathematicians would seem naturally presented to our view in pairs, or two by two like so many enthymemes: as Cardan and Tartalea; Descartes and Fermat; Newton and Leibnitz; Euler and D'Alembert; La Grange and La Place. We are not sure that there is much in this; nor how it ought to be accounted for. Doubtless many specious theo-

ries might be started; and the most obvious, we think, would resolve it into the principle of rivalry, for we are all in some way or other, and to a certain degree, ambitious; and, if the organ of rivalry or rivalryship be not already in the phrenological catalogue, it deserves insertion. But the apparent fact which we have pointed out deserves to be noted as a kind of historical phenomenon; and, if it serve no other purpose it will assist the memory, and be some food for the principle of suggestion or mental association at any rate. If we do not convert or generalise it into a law of continuity, as an *a priori* principle of reasoning concerning the future, it can do no harm.

It appears also from the sketch above attempted that the countries of Europe most distinguished for mathematical pre-eminence are Italy, France, Germany, England, Switzerland, and Holland. Italy was first in the order of time, and for a considerable period highest in rank; but she appears to have been gradually sinking from her high station, and receding from our view. As to France, Germany, and England, it is difficult perhaps to award absolutely, or at least satisfactorily, the mathematical pre-eminence. Perhaps they properly stand in the order in which we have named them. Monk-ridden Spain has had one Cervantes; but, with all her advantages of monkish instruction, she has not a single mathematician or philosopher to produce since the times of king Alphonso. We may remark too that it is not Catholic, but Protestant Germany which has the honor of mathematical pre-eminence. It is not in the south, but in the north of Germany, where the Leibnizs and the Mercators or Kauffmanns are to be found. Though there be no royal way to geometry, yet, if we may judge from its history, it is of a very royal nature; still we do not discover any eminent geometers in the regions of Austria, or about the imperial court of Vienna. Of the Catholic countries, mathematically distinguished, France and Italy; they are those very countries in which Catholicism (or, as we are used to call it, Popery) has least dominion over the minds of the educated classes.

We must, before concluding, fulfil our promise of attempting an estimate of the merits of mathematical learning: but we approach it with caution and reluctance, as we have some unfashionable and heretical notions on the subject. We think that there is much unsound opinion, and not a little blind idolatry, of the mathematics which ought to be opposed, and if possible, removed. That the mathematics are of very great importance to philosophy there is no intention of denying: the question is, to what extent are they important, and in what does their importance consist? In as far as they are necessary or subservient to the arts and sciences, or to natural philosophy, their importance or excellence, that is their utility, is freely and fully admitted. That they tend also to improve the mind in youth by exercising it, by forming a habit of attention, and by strengthening the memory, is likewise admitted. But all this is nothing when compared with the imaginary

quantity of the abstract excellence of the pure mathematics. We here quote Dr. Barrow, the mathematical tutor, and predecessor of the immortal Newton. 'The mathematics effectually exercise,' he says, 'not vainly delude, nor vexatiously torment studious minds with obscure subtilties; but plainly demonstrate every thing within their reach, draw certain conclusions, instruct by profitable rules, and unfold pleasant questions. These disciplines likewise inure and corroborate the mind to a constant diligence in study; they wholly deliver us from a credulous simplicity, most strongly fortify us against the vanity of scepticism, effectually restrain us from a rash presumption, most easily incline us to a due assent, and perfectly subject us to the government of right reason. While the mind is abstracted and elevated from sensible matter, distinctly views pure forms, conceives the beauty of ideas, and investigates the harmony of proportions; the manners themselves are sensibly corrected and improved, the affections composed and rectified, the fancy calmed and settled, and the understanding raised and excited to more divine contemplation.'

Such are the panegyric strains of the great Dr. Barrow on the amazing properties and wonder-working powers of the pure mathematics; yet the converse of almost every one of his numerous positions or postulates would be perhaps a nearer approximation to pure truth. We have already adverted to the striking fact of the ancient geometry existing in the highest estimation in close connexion with glaring absurdity, and a species of sophistry dignified with the imposing name of philosophy; but we are prepared to go a step farther, and to show, if our limits would permit, that the geometry was the cause or occasion, if not wholly, at least in a great measure, of the false philosophy of the ancients. There was not only a natural alliance between their geometry and their syllogistic logic; but, if it had not been for the former, the latter would have never existed. And much of what is appended to the article *Logic* in this work, from Dr. Brown's Lectures, is applicable to geometry, and the use which has been made of it.

But for geometry, the *a priori* road to knowledge and course of reasoning, would, it is probable at least, never have been taken: and it is observable how fondly mathematicians still cling to that method of arriving at pure truth, or of demonstrating its existence. Even Mr. Playfair, in his admirable analysis of the *Novum Organum* of Bacon, almost sets up the *a priori* claims as worthy of the fullest confidence and highest reverence. It was from geometry too that the inveterate habit was contracted of demonstrating, or pretending to demonstrate, every thing; even self-evident propositions. The mischievous influence and consequences of this evil habit of mind we cannot stop to point out; but they are very obvious, and we refer the reader to the concluding part of the article *Logic*.

Another bad habit of the geometers is that of employing absurd language; which, if not one of the marks of absurd geometry, as Hobbes would argue, must be of very pernicious ten-

dency in reasoning, and upon the principle or faculty of reason, or whatever it ought to be called. We have noted professor Playfair's memorable apology, or rather sarcastic and defying defence of that which is now under animadversion. In speaking of what he terms the 'figurative expression, which gives to negative quantities the name of quantities less than nothing,' he adds, 'a phrase that has been severely censured by those who forget that there are correct ideas which correct language can hardly be made to express.' It is certainly a paradoxical postulate that incorrect language is the most infallible nuncio, the most faithful witness, the most sure and certain exponent of correct ideas. But granting all this, and every thing homogeneous to it, to be absolutely and infallibly true in the mathematics (and there is much that is very unaccountable and incomprehensible about them), what is likely to be the result of such a habit of thinking and arguing? That, unquestionably, which we find so often practically demonstrated; for, notwithstanding the eulogistic appropriation of the expression, mathematical reasoning, in cases where the attributive cabatistic would be just as appropriate, none are more guilty of employing incorrect, indefinite, unmeaning, and absurd language than mathematicians. And we lay it down advisedly as a position that the best geometers, all other things being equal, are the worst metaphysicians; that is they reason most inaccurately, most inconclusively, most falsely, on all subjects not purely mathematical, and exclusively physical; and even on physical subjects their reasoning is often sadly awry. The data are so defective that we will not pronounce upon the metaphysical aptitudes and capabilities of Newton; but we know what sort of metaphysicians and theologians are the Descartes (for Descartes may be enrolled among metaphysicians), the Leibnizes, the Maupertuis, the Condorcets, the Prices, the Clarkes, the Whistons, the Hutchinsons, and the Swedenborgs. An uncommon number of mathematicians have tried their minds at metaphysics; or rather nearly all who long passed for profound metaphysicians were also profound mathematicians. The reason is obvious; for as we remarked concerning geometry and the syllogistic logic, and we might have added the Aristotelian philosophy (the good old metaphysics of the schools), there is not only a natural alliance and homogeneous relation between the pure mathematics and the pure metaphysics; but they are related as parent and child; the one is the offspring or consequent of the other, and would have never existed without its antecedent geometry, at least with its essential properties fully brought forth, or developed in all their imaginary and negative quantities. It is usual indeed to identify pure geometry with pure intellect, or to represent geometry as having a centripetal relation to the understanding, and a centrifugal relation to the imagination, as if nothing but mutual attraction existed between A and B; and nothing but mutual repulsion between A and C; or as if nothing but mutual affection dwelt between geometry and the understanding, and mutual antipathy between geometry and the

imagination. But this is as far from the true system as the theories of Tycho Brahe, Ptolemy, and Descartes; for geometry is in reality the most imaginative science or entity in the world; only it is pure imaginativeness, 'abstracted and elevated from sensible matter,' as Dr Barrow justly remarks.

We have enumerated a considerable number of great mathematicians now generally regarded as indifferent metaphysicians; at least their claims in the latter character, though for a time and to a certain extent current coin, are now almost as much depreciated as assignats. And we have to oppose to them a few great philosophers who were not eminent as geometers. Kepler, for instance, is considered an indifferent geometer, but he was as superior to most of his contemporaries (all except Bacon and Galileo) in philosophy, as he was inferior to many of them in geometry. Hobbes, with all the odium attached to his name (too much merited indeed) is allowed by the most competent judges to have been one of the greatest metaphysicians that any age or country ever produced. Indeed he was about as superior to his disciple and commentator, the far-famed Locke, as Sir Isaac Newton was to William Whiston. Hobbes, however, is considered no geometer; and though he published *Six Lessons to the Professors of the Mathematics*; *Marks of absurd Geometry*, &c., he has had all the mathematicians against him, and is not deemed worthy of being named in their company. Hobbes began the mathematics somewhat late in life. Had he been devoted to them in his youth, he would have probably excelled in them as much as Oughtred, Wallis, or even Newton; but in that case it is almost inconceivable that he should have been the author of the book on *Human Nature*, &c.

A more demonstrable instance in proof of our opinion yet remains; Bacon, we were going to say the immortal, but that as a cognomen is appropriated and somewhat hackneyed. Bacon was, in the most absolute sense, no mathematician; he was, however, not only the first of philosophers, but the creator of philosophy itself, or the originator at least of almost all that deserves the name. Hume, indeed, in the exercise of his historico-judicial function, passes sentence of degradation upon Bacon, and he must rank, it seems, below 'Galileo, perhaps even Kepler, purely because he was ignorant of geometry. This is singularly equitable and consistent on the part of Mr. Hume; that very Mr. Hume who imputes the false notions and absurd reasonings of philosophers to their addictedness to the mathematics; which, he says, accustomed them to obscure modes of reasoning by unaccountable and unintelligible processes, that nevertheless bring them right at last, like a man groping through a dark passage into the light of day.

Another bad habit of the geometers is a theorising propensity; and even Newton, with all his exemplary caution in forming opinions and patience in 'waiting for thought,' was not wholly proof against what may be termed the natural tendency of geometry, and the easily besetting sin of geometers. Even the author of the *Principia* was willing to assign a subtle ether as the

cause of gravitation. It must not be forgotten, indeed, that the Newtonian system of the universe is only the most probable and satisfactory of all the theories yet propounded: and there are men of very respectable intellect who are incorrigible heretics as to the true system, and who obstinately refuse to give their unfeigned assent and consent to all its articles. We do not impugn its orthodoxy; but, though our faith in it be as sound and strong as can be reasonably required, there is a possibility at least that it may prove after all a Cartesian hypothesis to some other Newtonian system.

That the eminent mathematicians have, for the most part, been men of much intellect, there can be no doubt; but the question is, whether their intellectual power was necessarily the consequent of geometry, or casually connected with it. That good mathematicians should be men of strong minds is not wonderful; for none but men of naturally strong minds are likely to take to the mathematics in good earnest, or to make any proficiency in them. There is no doubt also, that the mental exertion or contention, as some term it, which they require, must strengthen, or, as expressed by Dr. Barrow, corroborate the mind. The syllogistic logic, the Aristotelian dialectics, are allowed to have wonderfully sharpened the intellects, and corroborated the minds of the schoolmen, whilst at the same time they perverted their reason, and almost deprived them of their sober senses. Were any other mental gymnastics substituted for the pure mathematics, we firmly believe that the corroborated result would come out with the same degree of accuracy, and with the same amount of imaginary quantity.

If any of our readers shall infer, from what we have written, that we wish to explode or depreciate the mathematics, they will be guilty either of a great error of judgment or a great breach of candor: our sole aim and endeavour have been to correct what we deem unsound opinions, and to moderate and modify what we deem a blind idolatry into a reasonable service of the understanding and of the affections. Let the mathematics be encouraged and patronised; let them be cultivated to the fullest extent, even with considerable waste of mental power and loss of money, to discover a north-west passage in the polar regions of fluxionary creation—to find out some new calculus, whether differential or integral. Were there no probable, or even possible, results, as to such a mixed, impure, vulgar, entity, as utility, in contending with practicability, and penetrating to a high mathematical latitude of discovery—were it merely for the sake of ‘the contention of mind’ (a very harmless kind of strife)—or to have it proved how far the algebraic analyst can go up out of our sight in some new-invented infinitesimal balloon:—in short, if

the mathematical progression were 1000 miles a-head of any practical purpose or advantage whatever, we would not be for terminating its career. We have spare hands enough and spare heads too; and, as all cannot find useful employment, it is better, perhaps, that they should be out of the way of idleness and mischief by digging mathematical holes and filling them up again; or in perpetual motion to discover new methods of ‘contention of mind’—new calculuses, new analyses, new fluxions, new infinitesimals to rival and supersede the old ones ad infinitum. Only let us know, if possible, what the mathematics are about, and wherein their infinite quantity of excellence consists. Let us admire and praise geometry, provided always that this pure divinity of abstract excellence do not befooled us as she did Plato, Aristotle, and so many others in much later times.

As really an instrument of that ‘knowledge which is power,’ geometry must ever have a high and commanding station among civilised nations. But as it may facilitate, so also may it be made to impede, the progress, or to prevent the diffusion of useful knowledge. It does so, as well as in other ways, when idly intruded where it is not necessary. And algebraic characters are often to be met with in books professedly for general information and instruction, where Arabic, Hindoo, or Chinese characters might, for any real necessity, or utility, be deemed as indispensable. This is worse than pedantry; though it be a natural result of mathematical idolatry. Comparatively few have time, inclination, or ability, to be geometers. To render useful knowledge general, therefore, it must be taken as much as possible out of the hands of geometry, and disengaged from such cabalistic signs as algebraic characters must ever be to the many—notwithstanding all the laudable exertions of Dr. Birkbeck, and the prodigious progress of mechanics’ institutions.

If geometry is to be regarded as any thing more than a vision, or mere mythological machinery, of the brain, it is an instrument or apparatus; but the apparatus may become so complex, unwieldy, and unmanageable, as to nullify all its excellencies into negative qualities. Herschell’s famous telescope was a wonderful object; and we have yielded, as well as others, to wonderment in beholding it: but we believe its wonderful and amazing property defeated its purpose. And, if its success had been as remarkable as its magnitude, the beneficial result to man’s temporal or eternal well-being would have been such a fractional minimum as it is demonstrated Archimedes would have moved the earth with in a million of years, if he had been provided with the data necessary to the problem.

Δὲς πού στῶ καὶ τὸν κορμὸν κινῶσα.

MATHER (Dr. Cotton), F.R.S., an eminent American divine, was born at Boston, New England, in 1663. He was educated in Harvard College, and in 1684 became minister of Boston. In 1710 the university of Glasgow sent him a diploma, enrolling him D. D., and

in 1714 the Royal Society of London chose him a fellow. He died in 1728. He published *Magnaliâ Christi Americana*, or an Ecclesiastical History of New England, from its first planting in 1620 to 1698, folio. But the most remarkable of all his works was that in which he defended

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If any of our readers shall infer, from what we have written, that we wish to explode or depreciate the mathematics, they will be guilty either of a great error of judgment or a great reach of candor: our sole aim and endeavour have been to correct what we deem unsound opinions, and to moderate and modify what we deem a blind idolatry into a reasonable service of the understanding and of the affections. Let the mathematics be encouraged and patronised; let them be cultivated to the fullest extent, even with considerable waste of mental power and loss of money, to discover a north-west passage in the polar regions of fluxionary creation—to find out some new calculus, whether differential or integral. Were there no probable, or even possible, results, as to such a mixed, impure, vulgar, entity, as utility, in contending with practicability, and penetrating to a high mathematical attitude of discovery—were it merely for the sake of ‘the contention of mind’ (a very harmless kind of strife)—or to have it proved how far the algebraic analyst can go up out of our sight in some new-invented infinitesimal balloon:—in short, if

the mathematical progression were 1000 miles a-head of any practical purpose or advantage whatever, we would not be for terminating its career. We have spare hands enough and spare heads too; and, as all cannot find useful employment, it is better, perhaps, that they should be out of the way of idleness and mischief by digging mathematical holes and filling them up again; or in perpetual motion to discover new methods of ‘contention of mind’—new calculuses, new analyses, new fluxions, new infinitesimals to rival and supersede the old ones ad infinitum. Only let us know, if possible, what the mathematics are about, and wherein their infinite quantity of excellence consists. Let us admire and praise geometry, provided always that this pure divinity of abstract excellence do not befool us as she did Plato, Aristotle, and so many others in much later times.

As really an instrument of that ‘knowledge which is power,’ geometry must ever have a high and commanding station among civilised nations. But as it may facilitate, so also may it be made to impede, the progress, or to prevent the diffusion of useful knowledge. It does so, as well as in other ways, when idly intruded where it is not necessary. And algebraic characters are often to be met with in books professedly for general information and instruction, where Arabic, Hindoo, or Chinese characters might, for any real necessity, or utility, be deemed as indispensable. This is worse than pedantry; though it be a natural result of mathematical idolatry. Comparatively few have time, inclination, or ability, to be geometers. To render useful knowledge general, therefore, it must be taken as much as possible out of the hands of geometry, and disengaged from such cabalistic signs as algebraic characters must ever be to the many—notwithstanding all the laudable exertions of Dr. Birkbeck, and the prodigious progress of mechanics’ institutions.

If geometry is to be regarded as any thing more than a vision, or mere mythological machinery, of the brain, it is an instrument or apparatus; but the apparatus may become so complex, unwieldy, and unmanageable, as to nullify all its excellencies into negative qualities. Herschell’s famous telescope was a wonderful object; and we have yielded, as well as others, to wonderment in beholding it: but we believe its wonderful and amazing property defeated its purpose. And, if its success had been as remarkable as its magnitude, the beneficial result to man’s temporal or eternal well-being would have been such a fractional minimum as it is demonstrated Archimedes would have moved the earth with in a million of years, if he had been provided with the data necessary to the problem.

Δός ποῦ στῶ καὶ τὸν κόσμον κινῶσω.

MATHER (Dr. Cotton), F.R.S., an eminent American divine, was born at Boston, New England, in 1663. He was educated in Harvard College, and in 1684 became minister of Boston. In 1710 the university of Glasgow at him a diploma, enrolling him D.D., and

in 1714 the Royal Society of London chose him a fellow. He died in 1728. He published *Magnalia Christi Americana*, or an Ecclesiastical History of New England, from its first planting in 1620 to 1693, folio. But the most remarkable of all his works was that in which he defended

the doctrine of witchcraft, entitled *The Wonders of the Invisible World*; being an Account of the Trials of Several Witches lately executed in New England, and of Several Remarkable Curiosities therein occurring; together with 1. Observations on the Nature, the Number, and the Operations of the Devils. 2. A Short Narrative of a late Outrage committed by a Knot of Witches in Swedeland; very much resembling and so far explaining that under which New England has labored. 3. Some Counsels directing a due Improvement of the Terrible Things lately done by the unusual and amazing Range of Evil Spirits in New England. 4. A Brief Discourse upon the Temptations which are the more ordinary Devices of Satan. This work was 'published by the special command of the governor of the province of Massachusetts's Bay in New England.' Boston and London, 1736, 4to.

MATIN, *adj. & n. s.* Fr. *matin*; Lat. *matutinus*, morning. Belonging to the morning: the morning; or morning worship.

The glow-worm shews the *matin* to be near,
And 'gins to pale his uneffectual fire. *Shakspeare.*

The winged choristers began

To chirp their *matins*. *Cleveland.*

Up rose the victor angels, and to arms

The *matin* trumpet sung. *Milton's Paradise Lost.*

By the pontifical, no altar is consecrated without reliques; the vigils are celebrated before them, and the nocturn and *matins*, for the saints whose reliques they are. *Stillington.*

That he should raise his mitred crest on high,

And clap his wings, and call his family

To sacred rites; and vex the ethereal powers

With midnight *matins*, at uncivil hours. *Dryden.*

I waste the *matin* lamp in sighs for thee;

Thy image steals between my God and me. *Pope.*

MATLOCK, a town of Derbyshire, near Wirksworth, on the edge of Derwent, noted for its bath; and remarkable for the huge rocks in its environs, particularly those called the Tor, on the east side of the Derwent, which seem to be piled one upon another. It is an extensive straggling village, built in a very romantic style, on the steep side of a mountain, rising irregularly from the bottom to nearly the summit. The warm springs were first discovered in 1698, and were soon after enclosed, and had commodious buildings erected. Two other springs have since been discovered, about 400 yards from the old ones, and they are now a place of considerable resort during the season, which commences in April and ends in October. The waters in quality much resemble those of Bristol, but are not so warm, their heat being, about 68°; they are recommended in glandular affections, rheumatism, and in the early stages of consumption. There are excellent accommodations for the company who resort to the bath; and the poorer inhabitants are supported by the sale of petrifications, crystals, &c.; and, notwithstanding the rockiness of the soil, the cliffs produce an immense number of trees, whose foliage adds greatly to the beauty of the place. Near the western bank of the Derwent is a petrifying spring. The spars of Derbyshire here form a considerable traffic; which being turned into vases, and chimney ornaments, bear a variegated polish equal to the finest porphyry. Opposite to

the High Tor, but rising with a gentler ascent though to a greater elevation, is Masson Hill which appears like a pile of immense crags. The summit of this mountain has been named the Heights of Abraham, and overlooks the country to a vast extent, besides commanding a beautiful bird's-eye view of nearly the whole dale. The height of this stupendous eminence is about 250 yards; the path to its summit has been carried in a winding or rather zigzag direction, and in various places has been planted with rows of firs, which, opening at convenient distances, admit the eye to range over the scenery beneath. Near the upper end of the dale is a spacious building erected for the manufacture of cotton, by Sir Richard Arkwright whose elegant mansion, Willersley Castle, stands on the south side of a commanding eminence which terminates the extensive range of rock that forms the eastern boundary of the Derwent in its course through Matlock dale. The castle consists of a body, in the form of an oblong square, having a circular tower rising from the centre of the roof, and a semicircular tower projecting from the front on each side of the entrance and two wings with a round tower at each angle the whole structure is embattled, and the walls are of free-stone.

MATO GROSSO, a province of Brasil, bounded north by that of Para, south by St. Paul's, west by the viceroyalty of La Plata, and east by Goias, between 52° and 61° of W. long., and between 10° and 23° of S. lat. This extensive country is little known to Europeans; it is intersected by the main ridge of the Andes which separates the rivers that run southward to the Plata from those that run in an opposite direction to the Amazons; and by these a communication is opened with the most distant parts of Brasil. Among them the river Aragua, which separates this province from Goias, is distinguished; it rises in lat. 19° S., and flows into the Tocantins in lat. 6° S., their united stream runs north for 370 leagues, and falls into the southern estuary of the Amazons. The Chingu is also a considerable river; which after a course of about 1000 miles, chief through Mato Grosso, falls into the Amazons at long. 53° W. and lat. 42° S. The great river Paraguay, which, running south, enters the ocean under the appellation of the Rio de la Plata, here also rises. Most of these streams, while they flow through the mountainous ground abound in gold; and it was in search of this precious article that the province was first visited, and that settlements were afterward established by the Portuguese. The chief of these remaining are Cuiaba, Villa Maria, S. Pedro el Rey, situated on the head streams of the Plata, and Villa Bella, near the sources of the Madera. The country is generally fertile, and similar in its productions to other parts of Brasil.

MATRASS, *n. s.* Fr. *matras*; Lat. *matrar* (being shaped like a javelin). A chemical apparatus for gardening glass.

Protect from violent storms, and the too parching darts of the sun, your pennached tulips and ruffled culus's, covering them with *matrasses*.

Leclerc's Kalender

Matrass is the name of a chemical glass vessel made for digestion or distillation, being sometimes ellipoid, and sometimes rising gradually tapered into a conical figure.

Quincy.

MATRICARIA, feverfew, in botany; a genus of the polygamia superflua order, syngenesia class of plants; natural order forty-ninth, composite. Receptacle naked; pappus none: cal. hemispherical and imbricated, with the marginal leaflets solid, and something sharp. There are several species, but the only remarkable one is

M. paranthium, the common feverfew, with very fibrous clustering roots, crowned with numerous compound leaves; upright stalks, branching on every side three or four feet high; garnished with compound plain leaves of seven oval folioles, cut into many parts; and all the branches terminated by many compound radiated white flowers having a yellow disc. There are varieties with double flowers, with semi-double flowers, with double fistular flowers, with a fistular disc and plain radius, with short rayed flowers, with rayless flowers, with rayless sulphur-colored heads, and with finely curled leaves. All these varieties flower abundantly in June, each flower being composed of numerous hermaphrodite and female florets; the former compose the disc, the latter the radius or border; and which, in the double and fistulous kinds, are very ornamental in gardens, but of a disagreeable odor; and are all succeeded by plenty of seed in autumn, by which they are easily propagated, as well as by parting the roots and cuttings.

MATRICE, *n. s.*

MATRICIDE,

MATRICULATE, *n. a. & n. s.*

MATRICULATION, *n. s.*

MATRIX.

matricide is the murder or murderer of a mother. *For matriculate*, says Ainsworth, 'a matrix, quod est velut matrice, continetur militum nomina.' To enter into an academical society by inserting one's name.

If the time required in vivification be of any length, the spirit will exhale before the creature be mature, except it be enclosed in a place where it may have continuance of the heat, and closeness that may keep it from exhaling; and such places are the wombs and *matrices* of the females.

Bacon.

Nature compensates the death of the father by the *matricide* and murder of the mother.

Broune.

If they be not lodged in a convenient *matr*, they are not excited by the efficacy of the sun.

Id. Vulgar Errors.

He, after some trial of his manners and learning, thought fit to enter himself of that college, and alter to *matriculate* him in the university.

Walton's Life of Sanderson.

A scholar absent from the university for five years, is struck out of the *matriculation* book; and upon his coming de novo to the university, ought to be again *matriculated*.

Ayliffe.

Stones that carry a resemblance of cockles, were formed in the cavities of shells; and these shells have served as *matrices* or moulds to them.

Woodward.

Suffer me, in the name of the *matriculates* of that famous university, to ask them some plain questions.

Arbutnot.

MATRICE, or *matrix*, in dyeing, is applied to the five simple colors, whence all the rest are derived or composed. These are the black, white, blue, red, and yellow, or root color.

MATRICE, or **MATRICES**, used by the letter-founders, are little pieces of copper or brass, at one end whereof are engraven, dentwise, or en creux, the several characters used in printing. Each character, virgula, and even each point in a discourse, has its several *matrix*; and of consequence its several puncheon to strike it. Engravers on metal cut or grave the *matrices*. When types are to be cast, the *matrice* is fastened to the end of a mould, so disposed as that, when the metal is poured on it, it may fall into the creux or cavity of the *matrice*, and take the figure and impression thereof.

MATRICES, used in coining, are pieces of steel in form of dyes, whereon are engraven the several figures, arms, characters, legends, &c., wherewith the species are to be stamped. The engraving is performed with several puncheons, which, being formed in *relievo*, make an indented impression, which the French call *en creux*.

MATRICULA, a register kept of the admission of officers and persons entered into any body or society whereof a list is made. Hence those who are admitted into our universities are said to be *matriculated*. Among ecclesiastical authors mention is made of two kinds of *matricula*; the one containing a list of the ecclesiastics, called *matricula clericorum*; the other of the poor subsisted at the expense of the church, called *matricula pauperum*.

MATRICULA was also applied to a kind of alms-house, where the poor were provided for. It had certain revenues appropriated to it, and was usually built near the church; whence the name was also frequently given to the church itself.

MATRIMONY, *n. s.*

MATRIMONIAL, *adj.*

MATRIMONIALITY, *adv.*

matrimonium. Marriage; the state or contract of marriage; matrimonial, of, pertaining, or suitable to, that state.

If any know cause why this couple should not be joined in holy *matrimony*, they are to declare it.

Comma Prayer.

If he relied upon that title, he could be but a king at courtesy, and have rather a *matrimonial* than a regal power, the right remaining in his queen.

Bacon's Henry VII.

So spake domestic Adam in his cave,

And *matrimonial* love. *Milton's Paradise Lost.*

Since I am turned the husband, you the wife;

The *matrimonial* victory is mine;

Which, having fairly gained, I will resign.

Druiden.

He is so *matrimonially* wedded into his church, that he cannot quit the same, even on the score of going into a religious house.

Ayliffe.

Courtship is *matrimony's* running footman, but seldom stays to see the stocking thrown. *Steevens.*

MATRIX, *n. s. & adj.*

MATRIX, *adj.*

Fr. matrone; Lat. *matrona*. A mother; an elderly lady: both the adjectives mean motherly or elderly.

Your wives, your daughters,

Your *matrons* and your maids, could not fill up
The cistern of my lust. *Shakespeare. Macbeth.*

He had heard of the beauty and virtuous behaviour of the queen of Naples, the widow of Ferdinando the younger, being then of *matronal* years of seven and twenty.

Bacon.

The *matronly* wife plucked out all the brown hairs, and the younger the white.

L'Estrange.

She was in her early bloom, with a discretion very little inferior to the most experienced *matrons*.

Tatler.

A *matron* sage

Supports with homely food his drooping age.

Pope.

In this mimic form of a *matron* in years,

How plainly the pencil of Denner appears!

The *matron* herself, in whose old age we see

Not a trace of decline, what a wonder is she!

Couper.

MATRONS, JURY OF. When a widow feigns herself with child, in order to exclude the next heir, and a supposititious birth is suspected to be intended, then, upon the writ de ventre inspiciendo, a jury of women is to be impannelled to try the question, whether the woman is with child or not. So, if a woman is convicted of a capital offence, and, being condemned to suffer death, pleads, in stay of execution, that she is pregnant, a jury of *matrons* is impannelled to enquire into the truth of the allegation; and, if they find it true, the convict is respited till after her delivery.

MATRONALIA, a Roman festival, instituted by Romulus, and celebrated on the kalends of March, in honor of Mars. It was kept by *matrons* in particular, and bachelors were entirely excluded from any share in the solemnity. The men during this feast sent presents to the women, for which a return was made by them at Saturnalia; and they gave the same indulgence to their servants now which the men gave to theirs at the feast of Saturn, serving them at table, and treating them as superiors.

MATROSS', n. s. Lat. *matara*, a javelin. A kind of artillery soldier.

Matrosses, in the train of artillery, are a sort of soldiers next in degree under the *gunners*, who assist about the guns in traversing, spunging, limber, and loading them: they carry firelocks, and march along with the store-waggons as a guard, and as assistants, in case a waggon should break.

Bailey.

MATSYS (Quintin), painter of history and portraits, was born at Antwerp in 1460, and followed the trade of a blacksmith, till he was in his twentieth year. His manner was singular, not resembling that of any other master, and his pictures were strongly colored and carefully finished, but yet they are somewhat dry and hard. If he had studied the antiques and the great masters of the Roman school, he might have proved one of the most eminent painters of the Netherlands. But he only imitated ordinary life; and seemed more inclined to copy the defects than the beauties of nature. Some of his historical compositions have great merit, particularly a descent from the cross, in the cathedral at Antwerp; which is justly admired for the spirit, skill, and delicacy of the whole. But the most remarkable and best known of his pictures is that of the two misers in the gallery at Windsor. He died in 1529.

MATSYS (John), the son of Quintin, painted

in the same style and manner, but not with a reputation equal to his father; though many of his pictures are sold to unskilful purchasers for the paintings of Quintin. One of his most frequent subjects was the representation of misers counting their gold, or the bankers examining and weighing it.

MATTER, n. s., v. n., & v. a. } Fr. *matiere*;
MATTERY. } Goth. *mattur*

(strength or substance); Ital. and Lat. *matéria*. Body; substance; material; corrupt or putrid fluids which arise in a wound or ulcer; the whole of a thing; hence subject; thing treated of; import; importance; also space or time occupied. 'Upon the matter,' a low and obsolete phrase for 'upon the whole,' or mainly; to matter is to be of importance; to generate pus or any corrupt fluid: and, as an active verb, to regard; think material: *mattery*, purulent; generating matter.

If the craftsmen have a *matter* against any man, the law is open; let them implead one another.

Acts xix. 38.

Alas! I wepyng am constrained to begin verse of sorowfull *matter*, that whilom in florishyng studie made delitable dities. For lo! rendyng muses of Poetes editen to me thynges to be writen, and dreneretres.

Chaucer.

The subject or *matter* of laws in general is thus far forth constant, which *matter* is that for the ordering whereof laws were instituted.

Hooker.

Where art thou? What's the *matter* with thee,

Shakspeare.

I have words to speak in thy ear will make thee dumb; yet are they much too light for the *matter*.

Id. Hamlet.

If I had had time to have made new liveries I would have bestowed the thousand I borrowed of you: but it is no *matter*, this poor shew doth better.

Id. Henry II.

The upper regions of the air perceive the collection of the *matter* of tempests before the air here below.

Bacon.

To help the *matter*, the alchemists call in many vanities out of astrology.

Id. Natural History.

Many times the things deduced to judgment may be meann and tuum, when the reason and consequence thereof may trench to point of estate. I call *matter* of estate not only the parts of sovereignty, but whatsoever introduceth any great alteration, or dangerous precedent.

Id. Essays.

In their superiors it quencheth jealousy, and layeth their competitors asleep; so that upon the *matter*, in a great wit deformity is an advantage to rising.

Id.

If then the soul another soul do make,
 Because her power is kept within a bound,
 She must some former stuff or *matter* take,
 But in the soul there is no *matter* found.

Davies.

It *matters* not, so they deny it all;
 And can but carry the lye constantly.

Ben Jonson.

It is *matter* of the greatest astonishment to observe the common boldness of men.

Decay of Poets.

The putrid vapours colliquate the phlegmatick humours of the body, which, transcending to the lungs, causes their *mattery* cough.

Harvey on Consumption.

The elder, having consumed his whole fortune, when forced to leave his title to his younger brother, left upon the *matter* nothing to support it.

Clarendon.

Upon the *matter*, in these prayers I do the same thing I did before, save only that what before I spake without book I now read. *Bishop Saunderson.*

Son of God, Saviour of Men! Thy name
Shall be the copious *matter* of my song. *Milton.*
The king of Armenia had in his company three of the most famous men for *matters* of arms. *Sidney.*
Deadly wounds inward bleed, each slight sore *matter*eth. *Id.*

He grants the deluge to have come so very near the *matter*, that but very few escaped. *Tillotson.*

If on one side there are fair proofs, and no pretence of proof on the other, and that the difficulties are most pressing on that side which is destitute of proof, I desire to know, whether this be not upon the *matter* as satisfactory to a wise man as a demonstration. *Id.*

I shall turn
Full fraught with joyful tidings of these works,
New *matter* of his praise, and of our songs. *Dryden.*

A prophet some, and some a poet cry,
No *matter* which, so neither of them lye,
From steepy Othrys' top to Pylus drove
His herd. *Id.*

Matters succeeded so well with him, that every body was in admiration to see how mighty rich he was grown. *L'Estrange.*

A fawn was reasoning the *matter* with a stag, why he should run away from the dogs. *Id.*

Away he goes to the market-town, a *matter* of seven miles off, to enquire if any had seen his ass. *Id.*

It *matters* not how they were called, so we know who they are. *Locke.*

Upon the whole *matter*, it is absurd to think that conscience can be kept in order with. *South.*

Some young female seems to have carried *matters* so far, that she is ripe for asking advice. *Spectator.*

If chance herself should vary,
Observe how *matters* would miscarry. *Prior.*
If Petrarch's muse did Laura's wit relieve;
And Cowley flattered dear Orinda's verse;
She hopes from you—Pox take her hopes and fears,
I plead her sex's claim: what *matters* hers! *Id.*

It seems probable to me, that God in the beginning formed *matter* in solid, massy, hard, impetible moveable particles, of such sizes and figures, and with such other properties, and in such proportion to space as most conduced to the end for which he formed them: and that those primitive particles being solids, are incomparably harder than any porous body compounded of them, even so very hard as never to wear or break in pieces, no ordinary power being able to divide what God himself made one in the first creation. *Newton.*

I have thoughts to carry a small *matter* in town, to learn somewhat of your lingo. *Congreve.*

In an inflamed tubercle in the great angle of the left eye, the *matter* being suppurated, I opened it. *Wiceman's Surgery.*

The herpes beneath *mattered*, and were dried up with common epuloticks. *Id.*

Pleased or displeased, no *matter* now 'tis past:
The first who dares be angry breathes his last. *Granville.*

This is so certain in true philosophy, that it is *matter*, of astonishment to me how it came to be doubted. *Cheyne.*

Some have dimensions of length, breadth, and depth, and have also a power of resistance, or exclude every thing of the same kind from being in the same place: this is the proper character of *matter* or body. *Watts's Logic.*

MATTHÆI (Christian Frederick), a learned Greek scholar, born at Grost, in Thuringia, in 1744. Having studied under Ernesti, he was invited by the empress of Russia to become professor of belles lettres in the university of Moscow. In 1785 he returned to Germany to search for ancient MSS.; and in 1789 accepted the professorship of philosophy at Wittenberg; but having completed his researches he returned to Russia. In 1805 he became aulic counsellor, and professor of classical literature at Moscow, where he died September 1811. He is distinguished by the discovery of Homer's Hymn to Ceres; and part of the alleged Clytemnestra of Sophocles. Matthæi published an edition of the New Testament in Greek and Latin, 12 vols. 8vo. 1783, and a vast number of editions of ancient authors.

MATTHEW, or Levi, the apostle and evangelist, the son of Alphaeus, was of Jewish origin, and probably a Galilean. Before his call to the apostleship he was a publican or tax-gatherer to the Romans. His office particularly consisted in gathering the customs of all merchandise that came by the sea of Galilee, and the tribute payable by passengers who went by water. Here he sat at the receipt of custom, when our Saviour called him. It is probable that, living at Capernaum, the place of Christ's usual residence, he might have some previous knowledge of him. He continued with the rest of the apostles till after our Lord's ascension. For the first eight years afterwards he preached in Judea. Then he went to propagate the gospel among the Gentiles, and chose Ethiopia as the scene of his apostolical ministry; where he suffered martyrdom, though others say he suffered in Parthia or Persia. Baronius tells us, the body of St. Matthew was transported from Ethiopia to Bithynia, and thence to Salernum in Naples, A. D. 951, where it was found in 1080, and where duke Robert built a church bearing his name.

Matthew wrote his gospel in Judea, at the request of those he had converted; and it is thought he began it in the year 41, eight years after Christ's resurrection.

MATTHIEW OF WESTMINSTER, a Benedictine monk and accomplished scholar, who wrote a history from the beginning of the world to the end of the reign of Edward I., under the title of Flores Historiarum, which was afterwards continued by other hands. He died in 1330.

MATTHEW PARIS. See PARIS.

MATTHIAS (St.), an apostle, chosen to fill up the place of Judas. (See Acts i.) He was qualified for the apostleship, by having been a constant attendant upon our Saviour all the time of his ministry. He is supposed to have been one of the seventy disciples. After our Lord's resurrection he preached the gospel first in Judea, and afterwards in Ethiopia, where he suffered martyrdom. They pretend to show the relics of St. Matthias at Rome; and at the famous abbey of St. Matthias near Treves. A gospel and some traditions were ascribed to St. Matthias; but are universally rejected as spurious.

MATTHIEU (Peter), a French historian,

born in 1583. He attended Louis XIII. to the siege of Montauban, where he fell sick, and died at Thoulouse in 1621. He wrote, 1 A History of memorable Events in the reign of Henry the Great; 2. History of the death of Henry IV.; 3. The History of St. Louis; and, 4. History of France from Francis I. to Louis XIII., in 2 vols. folio.

MATTOCK, n. s. Sax. *matteuc*; Wel. *matog*; Mr. Thomson says of Goth. *matf*, strength, and *hoga*, a hoe. A kind of hoe or pickaxe.

The Turks laboured with *matlocks* and pickaxes to dig up the foundation of the wall. *Knolles*.

Give me that *mattock*, and the wrenching iron.

Shakspeare.

You must dig with *mattock* and with spade,

And pierce the inmost centre of the earth. *Id.*

To destroy mountains was more to be expected from earthquakes than corrosive waters, and condemneth the judgment of Nerves, that wrought through mount Athos with *matlocks*. *Brownie*.

This night his weekly toil is at an end,

Collects his spades, his *matlocks*, and his hoes,

Hoping the morn in ease and rest to spend,

And weary, o'er the moor, his course does haweward bend. *Burns*.

MATRESS, n. s. French *matelas*; Belg. and Wel. *mattras*; Ital. *matrize*; Lat. *matra*. Heb. *מטה*, *lectus*, a couch. A species of couch or quilted bed.

Nor will the raging fever's fire abate,

With golden canopies and beds of state;

But the poor patient will as soon be found

On the hard *matrass*, or the mother ground. *Dryden*.

Their *mattresses* were made of feathers and straw, and sometimes of furs from Gaul. *Arbuthnot*.

MATURE, v. a. & adv.

Fr. *maturité*; Ital.

MATURATION, } and Latin *maturatio*;

MATURATIVE, } Span. and Port. *maturar*;

MATURELY, adv. } *duro*; Heb. *מטר*,

MATURITY, n. s. } rain. —Minsheu. To

ripen, or promote ripeness or perfection: as an adjective, ripe; perfect; or advancing near to perfection or ripeness: hence well-meditated or concocted; well-disposed. Maturation is the state or act of ripening; and, in surgery, the act or state of approaching towards suppuration. Maturative, conducing to a state of suppuration or ripeness. Maturely is used by Bentley, after the Latin manner, for early, soon. Maturity is ripeness; fitness, completion.

When once he was *mature* for man:

In Britain where was he.

That could stand up his parallel,

Or rival object be? *Shakspeare, Cymbeline.*

This lies glowing, and is *mature* for the violent breaking out. *Id. Coriolanus.*

There is the *maturation* of fruits, the *maturation* of drinks, and the *maturation* of imposthumes, as also other *maturations* of metals. *Baron's Natural History.*

Prick an apple with a pin full of holes, not deep, and smother it a little with sack, to see if the virtual heat of the wine will not *mature* it. *Id.*

It may not be unfit to call some of young years to train up for those weighty affairs, against the time of greater *maturity*. *Bacon.*

Impatient nature had taught motion

To start from time, and cheerfully to fly

Before, and seize upon *maturity*. *Crashaw.*

Between the tropicks and the equator their second

summer is hotter, and more *maturative* of fruits than the former. *Brownie*.

Their prince is a man of learning and virtue, *mature* in years and experience, who has seldom vanity to gratify. *Addison.*

Mature the virgin was of Egypt's race,
Grace shaped her limbs, and beauty decked her face. *Prior.*

Various mortifications must be undergone, many difficulties and obstructions conquered, before we can arrive at a just *maturity* in religion. *Rogers.*

Butter is *maturative*, and is profitably mixed with anodynes and suppuratives. *Wiseman's Surgery.*

We have no h spare in summer; it
well if it be sufficient for the *maturation* of fru

Bentley.

We are so far from repining at God, that he hath not extended the period of our lives to the longevity of the antediluvians; that we give him thanks for contracting the days of our trial, and receiving us more *maturely* into those everlasting habitations above. *Id.*

How shall I meet, or how accost the sage,
Unskilled in speech, nor yet *mature* of age!

Pope.

Love indulged my labours past,

Matures my present, and shall bound my last. *Id.*

A prince ought *maturely* to consider, when he enters on a war, whether his coffers be full, and his revenues clear of debt. *Swift.*

The fruits of age, less fair, are yet more sound
Than those a brighter season pours around;
And, like the stores autumnal suns *mature*,
Through wintry rigours unpaired endure. *Cowper.*

MATURIN (Charles), an ingenious clergyman, curate of St. Peter's Dublin, was the author of several popular pieces, &c., which, as his Family of Montorio, exhibit considerable powers of imagination, with a happy command of language. His tragedy of Bertram, performed at Drury Lane theatre, with Mr. Kean as the principal character, first brought him into notice, and is said to have produced him £1000. In some subsequent dramatic attempts he not only failed but involved himself in embarrassments, from which he was only set free by his death in October 1825. In 1821 he published *The Universe*, a poem in blank verse, which brought him more profit; and in 1824 appeared six Controversial Sermons, preached at St. Peter's during Lent. These exhibit him as an able scholar, and reasoner, and he is said to have been remarkably felicitous in their delivery.

MATY (Matthew), M. D. and F. R. S., an eminent physician, born in Holland in 1718. He was the son of a clergyman, and originally intended for the church; but in consequence of some mortifications his father met with, on account of his particular sentiments about the Trinity, turned his attention to physic. He took his degree at Leyden; and in 1740 settled in England. In 1749 he began to publish in French an account of the productions of the English press, printed at the Hague under the name of the *Journal Britannique*. This journal, which is still esteemed one of the best that have appeared since the time of Hayle, introduced him to some of the most respectable literary characters of the country. To their active friendship he owed the places he afterwards possessed. *Id.*

1758 he was chosen F.R.S., and in 1765 on the resignation of Dr. Birch, who died a few months after, and made him his executor, secretary to the Royal Society. He had been appointed one of the under librarians of the British Museum in 1753, and became principal librarian at the death of Dr. Knight in 1772. In 1776 a languishing disorder put an end to a life uniformly devoted to science and humanity. He was an early and active advocate for inoculation; and tried it upon himself. He was a member of the medical club, which met every fortnight in St. Paul's church-yard. He had nearly finished the *Memoirs of the Earl of Chesterfield*; which were completed by his son-in-law Mr. Justamond, and prefixed to that nobleman's *Miscellaneous works* published in 1777, in 2 vols. to.

MATY (Paul Henry), M.A. and F.R.S., son of the Dr., was educated at Westminster and Trinity College Cambridge, and had a travelling fellowship for three years. He was afterwards chaplain to lord Stormont at Paris, and soon after vacated his fellowship by marrying a sister of captain Clark, the coadjutor of captain Cook. On his father's death, in 1776, he succeeded him as secretary to the Royal Society, and as a librarian of the British Museum; and was afterwards promoted to the care of the antiquities, for which he was eminently qualified. In the disputes in the Royal Society in 1784, respecting the reinstatement of Dr. Hutton in the department of secretary for foreign correspondence, Mr. Maty took a warm and distinguished part, and resigned the office of secretary; after which he became a tutor in the Greek, Latin, French, and Italian classics. Having conceived some doubts about the articles he had subscribed in early life, he never placed himself in the way of ecclesiastical preferment, though his connexions were such as could have assisted him in this manner; and soon after his father's death he withdrew from the established church, and published his reasons in the *Gentleman's Magazine*. His whole life was thenceforward taken up in literary pursuits. He received £100 from the duke of Marlborough, with a copy of the *Gemmae Marlburienses*, of which only 100 copies were printed for presents; and of which Mr. Maty wrote the French account, as Mr. Bryant did the Latin. In January 1782 he set on foot a Review of publications, principally foreign, which he carried on with great credit to himself, and satisfaction to the public, for nearly five years; when he was obliged to discontinue it from ill health. He had long labored under an asthmatic complaint, which at last put a period to his life in January 1787, at the age of forty-two, leaving one son.

MAUBEUGE, a town in the north-east of France, department of the north, situated on the Sambre. It is well built; and has a manufacture of arms employing from 400 to 500 workmen. Woollen stuffs likewise are made here, stone-ware, and hard-ware. In October, 1793, this fortress sustained a blockade from the allies, who were, however, obliged to retreat suddenly across the Sambre; and this was one of the strong places occupied by the allied troops from 1815

to 1818. Population 4800. Thirteen miles south of Mons.

MAUDYLIN, *n. s.* As Dr. Johnson suggests, from Magdalen, because this creation of the painter is drawn with swollen eyes and a disordered look; according to Mr. Thomson, and more probably, from muddle, to drink. Drunk, or half-drunk.

She largely, what she wants in words, supplies
With *maudlin* eloquence of trickling eyes.

Roscommon.

And the kind *maudlin* crowd melts in her praise.
Southern.

I also like to dine on becaficas,
To see the sun set sure he'll rise to-morrow,
Not through a misty morning twinkling weak as
A drunken man's dead eye in *maudlin* sorrow,
But with all heaven to himself.

Byron.

MAUDLIN, *n. s.* Probably from mad, a worm.
A plant.

The flowers of the *maudlin* are digested into loose
unbels.

Miller.

MAUDUIT (Israel), F.A.S., a celebrated English political writer, born in 1708, and educated at Taunton, in the Academy of Dissenters, as a dissenting clergyman. He preached at the Hague, and afterwards in England; but afterwards commenced merchant in company with his brother. In 1760 he published *Considerations on the present German War*, which had a great and rapid sale; and, in 1761, *Occasional Thoughts on the same subject*. He was soon after appointed agent for Massachusetts; and, in 1769, published *A Short History of the New England Colonies*. In 1774 he published *The Case of the Dissenting Ministers*, addressed to the Lords Spiritual and Temporal. He afterwards wrote several severe pamphlets against the ministry during the American war. He died in 1787, unmarried, leaving a fortune.

MAUDUIT (Michael), a learned French divine, born at Vercy, in Normandy. He published, 1. *A Treatise on Religion*, against the Sceptics; 2. *Excellent Analysis of most of the books of the New Testament*, 3 vols. 12mo. He died in 1709.

MAUGRE, *adj.* Fr. *malgré*, of Latin *contra* *gratia*. In spite of; notwithstanding. Obsolete.

Do me not to dy,
Ne deem thy force by fortune's doom unjust,
That hath, *maugre* her spite, thus low me laid in
dust.

Spenser.

Maugre thy strength, place, youth, and eminence;
Thy valour, and thy heart; thou art a traitor.

Shakspeare.

I through the ample : triumph high,
Shall : : : : : hell : and show
The powers of darkness bound.

Milton's Paradise Lost.

Maugre all which, 'twas to stand fast,
As long as monarchy should last.

Hudibras.

He prophesied of the success of his gospel; which after his death, immediately took root, and spread itself every where, *maugre* all opposition or persecution.

Bucuet.

MAVIS, *n. s.* Fr. *mauvais*. A speckled bird; a kind of thrush.

The world that cannot deem of worthy things,
When I do praise her, say I do but flatter;

So doth the cuckow, when the *maris* sings,
Begins his witless note apace to clear. *Spenser.*
In birds, kites have a resemblance with hawks,
and black-birds with thrushes and *marises*.

Bacon's Natural History.

MAUL, *v. a. & n. s.* Lat. *malleus*. See **MALL**.
To bruise or beat with a heavy weapon, or in a coarse manner; a heavy hammer.

A man that beareth false witness is a *maul*, a sword, and sharp arrow. *Prov. xxv. 18.*

Will he who saw the soldier's mutton list,

And saw thee *mauled*, appear within the list,

To witness truth?

Dryden's Juvenal.

Excess is not the only thing by which *sin mauls* and breaks men in their health, and the comfortable enjoyment of themselves thereby, but many are also brought to a very ill and languishing habit of body, by more idleness; and idleness is itself both a great sin, and the cause of many more. *Saath.*

But fate with butchers placed thy priestly stall,
Meek modern faith to murder, hack, and *maul*.

Pope.

I had some repute for prose;

And, till they drove me out of date,

Could *maul* a minister of state.

Swift's Miscellany.

MAULE, a province of Chili, bounded on the north by Calchagua, on the east by the Andes, on the south-east by Chilan, on the south-west by Itata, and on the west by the sea. It is 133 miles from north to south, and ninety from east to west; and is watered by numerous rivers. On its east border is the volcano Peteroa. It abounds in cattle and goats.

MAUND, *n. s.*

Saxon *mauns*. A

MAUNDAY-THURSDAY. } hand-basket. Maunday Thursday is so called, according to Spelman, because the king then gives alms (in a basket) to the poor; according to others, from dies mandati, the day on which our Saviour gave his mandate, 'That we should love one another. The Thursday before Good-Friday.

MAUNDIER, *n. s.* } Fr. *mandire*, of Goth.

MAUNDIER. } and Teut. *maud*, the mouth. To grumble; a grumbler.

He made me many visits, *maundering* as if I had done him a discourtesy in leaving such an opening.

Hesman's Surgery.

MAUPERTUIS (Peter Louis Moreau de), a celebrated French academicien, born at St. Malo in 1698. He was privately educated at St. Malo till he was in his sixteenth year, when he was placed under the celebrated M. le Blond, in the college of la Marche, at Paris. He soon discovered a taste for mathematical studies, particularly geometry; and at the age of twenty entered into the army. He first served in the Grey musqueteers; but in 1720 his father purchased a commission for him in the regiment of La Rocheguyon. He remained only five years in the army, during which time he pursued his mathematical studies with great vigor. In 1723 he was received into the Royal Academy of Sciences, and read a memoir upon the construction and form of musical instruments, November 15th, 1724. He also discovered great knowledge and dexterity in observations and experiments upon animals. He visited London, where he became a zealous admirer and follower of Sir Isaac Newton. He next went to Basil in Switzerland,

where he formed a friendship with the famous John Bernouilli, which continued till his death. On his return to Paris he applied himself to his favorite studies with greater zeal than ever. By the Memoirs of the Academy, from 1724 to 1736, it appears that the most abstruse questions in geometry, and the relative sciences, were treated by him with that elegance, clearness, and precision, so remarkable in all his writings. In 1736 he was sent by Louis XV. to the polar circle, to measure a degree, in order to ascertain the figure of the earth, accompanied by Messrs. Clairault, Camus, Le Monnier, abbé Outhier, and professor Celsius at Upsal. This rendered him so famous, that, after his return, he was admitted a member of almost every academy in Europe. In 1740 he was invited by the king of Prussia to Berlin. He accepted Frederick's invitation the more readily, that his studies had not wholly effaced his love for arms. He followed the king into the field, and was a witness of the dispositions and operations that preceded the battle of Mollwitz; but was deprived of the glory of being present, when victory declared in favor of his royal patron, by his horse, during the action, running away with him. He thus fell into the hands of the enemy, and was but roughly treated by the Austrian soldiers; but, being earned prisoner to Vienna, he received the highest honors from their imperial majesties. From Vienna he returned to Berlin; but, as the reform of the academy which the king of Prussia then meditated was not yet mature, he went again to Paris, and was chosen in 1742 director of the Academy of Sciences. In 1743 he was received into the French Academy; and was the first person who was a member of both the academies at the same time. M. de Maupertuis again assumed the military character at the siege of Fribourg, and was chosen by marshal Cigny and count Argenson to carry the news to the French king of the surrender of that citadel. He returned to Berlin in 1744, when he married Madame de Borek, a lady of great beauty and merit, nearly related to de Borek, then minister of state. This determined him to settle at Berlin, as he was extremely attached to his lady, and regarded the alliance as the most fortunate circumstance of his life. In 1746 he was declared by the king president of the Royal Academy of Sciences at Berlin, and soon after was honored with the order of Merit. These accumulated honors only increased his ardor for the sciences. Nor did he confine himself to mathematical studies; metaphysics, chemistry, botany, literature, all shared his attention, and contributed to his fame. But he had a dark atrabilious humor, which rendered him miserable amidst all his honors and pleasures. This temperament contributed to engage him in several quarrels; particularly with professor Koenig at Franeker, and with Voltaire. Maupertuis had inserted in the Memoirs of the Academy of Berlin, for 1746, a discourse upon the laws of motion; which Koenig not only attacked, but attributed to Leibnitz. Maupertuis enraged at the imputation of plagiarism, engaged the academy of Berlin to call upon him for his proof; which Koenig failing to produce, he was struck out of the academy, of which he was

member. Several pamphlets were the consequence of this; and Voltaire, to the surprise of the public, engaged against Maupertuis. The constitution of the latter had long been impaired by the great fatigues in which his active mind had involved him, as well as by the amazing hardships he had undergone in his northern expedition. These had brought on a spitting of blood, which began at least twelve years before he died. He took several journeys to St. Malo, for the recovery of his health; and, though he always received benefit from his native air, yet, upon his return to Berlin, his disorder returned. His last journey to France was undertaken in 1757; when he was obliged, soon after his arrival, to quit his favorite retreat at St. Malo, on account of the danger and confusion which that town was thrown into by the arrival of the British. He went thence to Bourdeaux, and then to Toulouse, where he remained seven months. He then went to Neufchatel, and at length arrived at Basil, in 1753, where he was received by his friend Bernoulli with the utmost affection. But, as the winter approached, his disorder returned; and, after languishing several months, he died in 1759. He wrote in French, 1. *The Figure of the Earth determined*; 2. *The Measure of a Degree of the Meridian*; 3. *A Discourse on the Parallax of the Moon*; 4. *A Discourse on the Figure of the Stars*; 5. *The Elements of Geography*; 6. *Nautical Astronomy*; 7. *Elements of Astronomy*; 8. *A Physical Dissertation on a White Inhabitant of Africa*; 9. *An Essay on Cosmography*; 10. *Reflections on the Origin of Languages*; 11. *An Essay on Moral Philosophy*; 12. *A Letter on the Progress of the Sciences*; 13. *An Essay on the Formation of Bodies*; 14. *A Eulogium on M. de Montesquieu*; 15. *Letters, and other works*.

MAUR (St.), SOCIETY OF, a celebrated society of Benedictines, instituted under the sanction of Gregory XV. in 1621.

MAURA, SANTA, anciently Leucadia and Neritus, an island in the Ionian Sea, on the west coast of Greece, nearly opposite the gulf of Arta, and a few miles north of Cephalonia. It is separated from the main land by a shallow strait, in some places not more than eighty or 100 paces wide. It is about fifty miles in circumference; and has a superficial extent of 120 square miles. Its surface is rugged, particularly towards the centre; but the soil, though far from fertile, is not so barren as that of the neighbouring island, Ithaca. The climate is mild, in summer very hot, and earthquakes are very frequent. The corn raised does not exceed half the consumption; but olive-oil, wine, citrons, pomegranates, and other fruits, are produced in abundance; and the pastures feed large numbers of sheep and goats. Game is plentiful, as well as bees, honey, and wax. The most important production of the island, however, is bay or sea-salt, of which between 5000 and 6000 tons annually are made. The inhabitants are of the Greek church. A number of them cross to the neighbouring continent, during a part of the year, in quest of work. The capital of the same name is fortified, and nearly surrounded by the sea, having an aqueduct raised on arches; and the port

is pretty good. The population is about 6000. In ancient times, Santa Maura was celebrated for a temple of Apollo, situated in the south part of the island. See LEUCADIA and LEUCATA. It was conquered successively by the Turks and the Venetians. In 1797 it was ceded, by the treaty of Campo Formio, to France; but, in 1799, it was declared one of the Seven Islands composing the Ionian republic, to the assembly of which it sends four deputies. It has several good ports; but no town of consequence except the capital. Population of the island 20,000. Long. 20° 30' E., lat. 39° 4' N.

MAURICE, or MAURITIUS (Tiberius), a native of Arabissus in Cappadocia, born A. D. 539. He was descended from an ancient and honorable Roman family.—After he had filled several offices in the court of Tiberius II. he obtained the command of his armies against the Persians. To reward his bravery, the emperor gave him his daughter Constantina in marriage, and invested him with the purple, 13th August, 582. The Persians still continued to make inroads on the Roman territories, and Maurice sent Philippiens, his brother-in-law, against them. This general at first gained several splendid victories, but did not continue to have a decided superiority. Maurice acquired much glory in restoring Chosroes II., king of Persia, to the throne, after he had been deposed by his subjects. The empire was in his reign harassed by the frequent inroads of the Arabian tribes. He purchased peace from them by a pension nearly equal to 100,000 crowns; but these barbarians took frequent opportunities to renew the war. In different engagements the Romans destroyed 50,000, and took 17,000 prisoners. These were restored, on condition that the king of the Abari should return all the Roman captives in his dominions. Regardless of his promise, he demanded a ransom of 10,000 crowns. Maurice, full of indignation, refused the sum; and the barbarian put the captives to the sword. While the emperor, to revenge this cruelty, was making preparations against the Abari, Phocas, who from the rank of a centurion had attained the highest military preferments, assumed the purple, and was declared emperor. He pursued Maurice to Chalcedon, took him prisoner, condemned him to die, and massacred his five sons before his eyes. He was beheaded on the 26th November, 602, in his sixty-third year, and twentieth of his reign. Maurice merited a better fate. He restored the military discipline, humbled the pride of his enemies, supported the Christian religion by his laws, and piety by his example.

MAURICE, elector of Saxony, son of Henry the Pious, was born A. D. 1521. He was early remarkable for his courage, and during his whole life was engaged in warlike pursuits. He served under Charles V., in 1544, against France; and in 1555 against the league of Smalkalde; with which, although a protestant, he would have no connexion. The emperor, as a reward for his services, in 1547, made him elector of Saxony, having deprived his cousin John Frederick of that electorate. But in 1551 he entered into a league with the elector of Brandenburg, the count Palatine, the duke of Wirtemberg, and other

princes, against the emperor. This league, encouraged by Henry II. of France, was more dangerous than that of Smalkalde. The pretext for the association was to deliver the Landgrave of Hesse, whom the emperor kept prisoner. Maurice and the confederates marched, in 1552, to the defiles of the Tyrol, and put to flight the Imperial troops. The emperor and his brother Ferdinand narrowly escaped, and fled in great disorder. Charles having retired into Passau, where he had collected an army, brought the princes of the league to terms of accommodation. By the famous peace of Passau, in 1552, the emperor granted an amnesty to all who had borne arms against him from 1546. The protestants not only obtained the free exercise of their religion, but were admitted into the imperial chamber, from which they had been excluded since the victory of Mulberg. Maurice soon after joined the emperor against the Margrave of Brandenburg, who laid waste the German provinces. He defeated him in 1553, at Silverhausen, but died of his wounds two days after. He was one of the greatest protectors of the Lutherans in Germany; and, after he had profited by the spoils of John Frederick, the chief of the Protestants, he became himself the leader of the party, and maintained the balance of power against the emperor.

MAURICE OF NASSAU, prince of Orange, succeeded to the government of the Low Countries after the death of his father William I., who was killed in 1584 by the fanatic Gerard. The young prince was then only eighteen; but he was appointed captain general of the United Provinces; and, in 1590, Breda submitted to him, and Zutphen, Deventer, Hulst, and Nimeguen, in 1591. He gained several important advantages in 1592, and made himself master of Gertrudenburg in 1593. He returned to the Netherlands by the way of Zealand. His fleet was attacked by a dreadful pest, which he lost forty vessels, and he himself narrowly escaped. Maurice, increasing in reputation, defeated the troops of the archduke Albert in 1597, and drove the Spaniards entirely out of Holland. In 1600 he was obliged to raise the siege of Dunkirk; but he took ample vengeance on Albert, whom he again defeated in a pitched battle near Newport. Before the action, this great general sent back the ships which had brought his troops into Flanders: 'My brethren,' said he to his army, 'we must conquer the enemy or drink up the waters of the sea. Determine for yourselves; I have determined I will either conquer by great bravery, or I will never survive the disgrace of being conquered by men in every respect our inferiors.' This speech elevated the spirits of the men, and the victory was complete. In 1598 Rhinberg, Grave, and Echuse, cities in Flanders, submitted to him. Maurice, however, now aimed at the sovereignty of Holland, but was opposed in his design by the patriot Barneveldt. The zeal and activity of this wise republican cost him his life. He was an Arminian. Maurice defended Gomar against Arminius; and, taking advantage of the general odium under which the latter lay, he had Barneveldt condemned in 1619. His death, wholly owing to the ambition of Maurice, made a deep impression on the Hollanders. The truce with

Spain being expired, Spinola laid siege to Breda in 1624; and in six months, after great slaughter of his troops, he took the place. Maurice, unsuccessful in every attempt to raise the siege, died of vexation in 1625, with the reputation of the greatest warrior of his time. 'His life,' says abbé Raynal, 'was almost an uninterrupted series of battles, sieges, and victories. Of moderate abilities in every thing else, he shone conspicuous in his military capacity.' Telescopes were first used by this prince for military purposes. He was succeeded as stadtholder by Frederick Henry his brother.

MAURICE (St.), commander of the Theban legion of Christian martyrs. See THEBAN LEGION. He was the patron of a celebrated order in the king of Sardinia's dominions, created by Emanuel Philibert, duke of Savoy, to reward military merit, and approved by Gregory XIII. in 1572.

MAURICE (St.), or St. MORTIZEN, a town of Switzerland, in the Valais, nineteen miles west of Sion, between two hills, on the Rhone; over which it has a stately stone bridge, from the one hill to the other. This pass is supposed to be the ancient Agaunum, where the Theban legion suffered martyrdom. It is a great thoroughfare for goods and travellers from Geneva, through Valais, and over Mount St. Bernard.

MAURICE (Rev. Thomas), was born in 1734, at Hertford, where his father conducted the school attached to Christ's Hospital. On his death, in 1763, the widow took a second husband, and the subject of this article was placed in Christ's Hospital; but his health declining he was removed to Ealing; and soon after taken under the patronage of the late Dr. Parr, at Stanmore. At the age of nineteen he went to St. John's College, Oxford, and about a year afterwards removed to University College, having taken his bachelor's degree, he was ordained to the curacy of Woodford, Essex, when he married, and continued to reside here till 1785, when he removed to Epping. About this time he devoted his attention to the history and antiquities of India; and in 1790 published *A Letter to the Directors, containing Proposals for a History of Hindostan*. In the year following he printed the first two volumes of his *Indian Antiquities*; succeeded, at intervals, by five more. In 1795 appeared the first volume of the *History of Hindostan*, which was completed in a third volume in 1799. In 1802 he published the first volume of the *Modern History of Hindostan*; and in 1804 the second. In this last year he was presented, by the chancellor, to the vicarage of Cudham, in Kent. He also obtained the pension that had been bestowed upon Cowper; and was likewise appointed one of the librarians of the British Museum. Besides the works already mentioned, Mr. Maurice was the author of various Poems, Sermons, Tracts on various subjects, and latterly of his own *Memoirs*, from which this account is taken. He died March 30th, 1824, and was buried at Woodford.

MAURICEAU (Francis), a French surgeon, who applied with great success and reputation to the theory and practice of his art for several years in Paris. He afterwards confined himself to the disorders of pregnant women, and was at the head of all the operators in his way. His

Observations sur la Grosseesse et sur l'Accouchement des Femmes, sur leurs Maladies, et celles des Enfants Nouveaux, 1694, in 4to., is reckoned

ne antea
some supplementary pieces, and died in Paris in 1709.

MAURITANIA, an ancient kingdom of Africa, bounded on the west by the Atlantic; on the south by Getulia, or Libya Interior; and on the north by the Mediterranean; and comprehending the greater part of the kingdoms of Fez and Morocco. Its ancient limits are not exactly mentioned by any historian. This country was originally inhabited by a people called Mauri, concerning the etymology of which name authors are not agreed. From the Jerusalem Targum it appears that part of the Mauri may be deemed the offspring of Lud, the son of Misraim, as his descendants, mentioned Gen. x., are there called מוריסי, Mauri, or Mauritani. It is certain that this region, as well as the others east of it, had many colonies planted in it by the Phœnicians. Procopius tells us that, in his time, two pillars of white stone were to be seen there, with the following inscription, in the Phœnician language and character, upon them: 'We are the Canaanites that fled from Joshua, the son of Nun, that notorious robber.' Ibnu Rachic, or Ibnu Raquic, an African writer cited by Leo, together with Evagrius and Nicephorus Callistus, assert the same thing. The earliest prince of Mauritania, mentioned in history, is Neptune; and next to him were Atlas and Antæus, his two sons, both famous in the Grecian fables on account of their wars with Hercules. See **ANTÆUS**, and **ATLAS**. Without adopting every particular of Sir Isaac Newton's System, it appears plain from scripture, that neither the western extremity of Libya, nor even the other parts of that region, could have been so well peopled before the time of David or Solomon, as to have sent a numerous army to invade Egypt. For Egypt and Phœnicia, whence the greatest part of the ancestors of the Libyans came, and which were much nearer the place whence the first dispersion of mankind was made, could not themselves have been greatly overstocked with inhabitants any considerable time before the reign of Saul. And that such an invasion happened in the reign of Neptune, or his son Antæus, has been fully evinced by this most excellent chronologer. From the defeat of Antæus nothing remarkable occurs in the history of Mauritania till the times of the Romans, who at last brought the whole kingdom under their jurisdiction. See **ROME**.

MAURITANIANS, the natives of Mauritania. According to Ptolemy, they were divided into several cantons or tribes. The Metagonitæ were seated near the straits of Hercules, now those of Gibraltar. The Saccosii, or Cocosii, occupied the coast of the Iberian Sea. Under these two petty nations the Masices, Veruces, and Verbiææ, or Vervicæ, were settled. The Salisæ, or Salinsæ, were situated lower, towards the ocean; and still more to the south the Volubiliani. The Maurænsii and Herpiditani possessed the east part of this country, which was terminated by the

Mulucha. The Angaucani or Jangaucæani, Nectiberæ, Zagrensii, Baniubæ, and Vacuncæ, extended themselves from the south foot of Ptolemy's Atlas Minor to his Atlas Major. Pliny mentions the Baniura, whom Harduin takes to be Ptolemy's Baniubæ; and Mela the Atlantes, whom he represents as possessed of the western parts of this district. With regard to the customs, &c., of this people, Hyginus insinuates that they fought only with clubs, till one Belus, the son of Neptune, taught them the use of the sword. Sir Isaac Newton makes this Belus the same with Sesostris, king of Egypt, who overran a great part of the then known world. All persons of distinction in Mauritania went richly attired, wearing much gold and silver in their clothes. They took great pains in cleansing their teeth, and curled their hair in an elegant manner. They combed their beards, which were very long, and always had their nails pared close. When they walked out in any numbers, they never touched one another, for fear of disconcerting their curls. The Mauritanian infantry, in time of action, used shields made of elephants' skins, and were clad in skins of lions, leopards, and bears, which they kept on night and day. The cavalry were armed with broad short lances, and carried also shields of the same kind. They used no saddles. Their horses were small and swift, had wooden collars about their necks, and were so much under the command of their riders that they would follow them like dogs. The habit of the horsemen was much the same with that of the foot. The Phutæi, of whom the Mauritanians were a branch, were remarkable for their shields, and the excellent use they made of them, as we learn from Homer, Xenophon, and Herodotus, who intimates that the shield and helmet came from them to the Greeks. Notwithstanding the fertility of their soil, the poorer Mauritanians never manured their ground, being strangers to husbandry; but roved about the country, in a wild savage manner, like the ancient Scythians and Arabs. They had mapah, or small tents; and their food was corn, herbage, &c., which they often ate green without any preparation; being destitute of wine, oil, and all the elegancies as well as many necessaries of life. Their habit was the same in summer and winter, consisting chiefly of an old, tattered, thick garment, and over it a coarse rough tunic. According to Horace, the Mauritanians shot poisoned arrows; and this is countenanced by Herodian and Elian, who say they were in such continual danger from wild beasts, that they durst not stir out of their tents without their arrows or darts. They sacrificed human victims to their deities, as did the Phœnicians, Carthaginians, &c. They were early addicted to magic, sorcery, divination, &c. Cicero and Pliny say that Atlas was the inventor of astrology, and the doctrine of the sphere, i. e. he first introduced them into Mauritania. This, according to Diosdorus Siculus, gave rise to the fable of Atlas's bearing the heavens upon his shoulders. He adds, that Atlas instructed Hercules in the doctrine of the sphere and astrology, or rather astronomy; who afterwards brought these sciences into Greece.

MAURITIA, the ginkgo, or maiden-hair tree, a genus of the order of palmæ: *CAT.* of the male monophyllous: *COR.* monopetalous, with six stamina. It is a native of Japan, where it is named ginnan and itsio. It rises with a long, erect, thick, and branched stem, to the size of a walnut tree. The bark is ash-colored, the wood brittle and smooth, the pith soft and fungous. The leaves are large, expanded from a narrow bottom into the figure of a maiden-hair leaf, unequally parted, streaked, without fibres; both surfaces having the same appearance, and supported upon foot-stalks, which are compressed upon the upper surface, and extended into the leaf. From the uppermost shoots hang the flowers in long catkins filled with the fertilising powder; to which succeeds the fruit, adhering to a long fleshy pedicle, which proceeds from the bosom of the leaves. This fruit is round, of the appearance and size of a damask plum. The substance surrounding it is fleshy, juicy, white, very harsh, and adheres so firmly to the enclosed nut as not to be separated from it, except by putrefaction. The nut, termed gineau, resembles the pistachia nut, especially a

most double in size, and of the figure of an apricot stone. The shell is somewhat white, woody, and brittle; and encloses a white loose kernel, having the sweetness of an almond along with a degree of harshness. These kernels are said to promote digestion, and to give relief in surfeits; whence they make part of the dessert in great feasts. They seem to be very hardy, and thrive in this country in the open air.

MAURITIUS, or the Isle of France, an island of the Indian Ocean, 600 miles east of Madagascar, was discovered by the Portuguese in 1500, and named *Acornia*, or the Isle of Swans; but, being neglected by them, the Dutch took possession of it in 1598, and named it *Mauritius*, after their stadtholder, prince Maurice. It was not, however, till 1610 that they formed an establishment on it at Grosport, but in 1712 they again abandoned it; and, three years after, the French East India Company formed an establishment at Port Louis, and gave the island its present name. In 1764 the company ceded it, together with the Isle of Bourbon, to the crown.

Its greatest benefactor was the French governor de la Bourdonnais, who fortified it in such a manner as to be considered at the time almost impregnable, and rendered it the chief naval station of the French in the Indian seas. He also encouraged cultivation, and introduced coffee, sugar, cloves, nutmegs, and cinnamon. It preserved its importance after we had annihilated the French power on the continent of India, and became then a grand privateering station against the British shipping. It was calculated that, in ten years, prizes to the value of £2,500,000 had been taken and carried into Mauritius. The vessels, after being emptied of their goods, were commonly sold to the Arabs. At length, in 1810, an expedition was despatched against it, when it was found incapable of making that defence which had been anticipated. After a short resistance the governor offered terms of capitulation, and the place was surrendered, with six frigates,

three East Indiamen, and twenty-four large merchant vessels. This settlement was retained at the peace, and may now be considered as a settled British colony.

This island is fourteen leagues long, and eight broad, being of an irregular oval figure, containing 340,000 square acres, and is surrounded by coral reefs and islets. The island gradually rises from the shore towards the centre of the island, where is a woody plain, elevated 1500 feet above the level of the sea. In the midst of this plain is a sharp conical mountain, called *Le Piton de Milieu de l'Isle*. There are several other distinct mountains, the principal of which is named *Piter Boot*, surmounted by an enormous and inaccessible rock, the elevation being 3000 feet: its base is surrounded by marshes, whence the principal rivers of the island issue. These rivers have, however, sensibly diminished by the indiscriminate destruction of the forests that clothed the sides of the hills, so that the island, which was formerly profusely watered, is now, particularly on the north, where the rivulets are all dried up, almost in want of it. There are some lakes among the mountains.

The vegetable productions of the island are extremely numerous, and afford a vast harvest to a hot mist: it is said, however, that one-half the flora of the island is composed of ferns and cryptogams. Though, in general, the soil is less fertile than that of Bourbon, and is every where covered with rocks that preclude the use of the plough, yet a considerable quantity of land is in cultivation, producing coffee, cotton, indigo, sugar, and some rice in the swampy spots.

The wild animals of the islands are, deer, hedge-hogs, monkeys, and rats of various kinds. The horned cattle are of the small Madagascar breed, with humps; and the horses, of Arabian extraction, much degenerated.

Birds are not numerous, and are chiefly of the smaller species. Some of them are foreigners, particularly the calfat, which is said to be propagated from some individual escaped from captivity, and the martin, purposely introduced from the Philippines to destroy the insects which devoured the vegetables. It has completely succeeded in extirpating caterpillars, grasshoppers, &c., but these birds have also multiplied so prodigiously as to be almost as destructive as the insects to the crops; hence every proprietor is obliged to present a certain number of their heads, as well as those of sparrows, to the magistrates annually.

The population of the island in

	Whites.	People of color.	Slaves.
1763	was 3000	. 500	. 15,000
1776	. 3431	. 1190	. 25,151
1806	. 7000	. 7000	. 70,000

Many of the slaves have escaped to the mountains of the interior, where they live wild.

The produce of the island is estimated as follows:—

Coffee	. . .	600,000 lbs.
Cotton	. . .	500,000
Indigo	. . .	300,000
Sugar	. . .	5,000,000
Cloves	. . .	20,000

The island is divided into twelve quarters, viz. Port Louis, Poudre d'Or, Pamplemousses (celebrated by the pen of St. Pierre), Plac, La Riviere des Ramparts, Trois Islets, Gros Port, Savannah, the military quarter (in the centre of the island and almost uninhabited and uncultivated), Moka, the Plains of Willem's, and the Plains of St. Pierre.

Port Louis, in the revolution called Port Liberty, Port North-west, and Port Napoleon, is the only town in the island: it contains about 5,000 whites, and double that number of people of color. The houses are chiefly of wood, and few of them have more than the ground floor, in consequence of the heavy storms the island is subject to. The entrance of the port is between two reefs, running out from each point, and is so narrow that but one vessel can be warped or towed in at a time; for the south-east wind, blowing almost constantly, prevents their sailing in, except occasionally when the south-west wind serves for an hour or two; and a light air from the north-west also sometimes prevails, but this is very precarious. The port is capable of holding about fifty ships. Cooper's Island off the North Point of the entrance of the port, to which it is joined by an artificial causeway 800 feet long, is nearly level with the water, and is strongly fortified, but commanded by batteries on the main.

Port Bourbon, the ancient Gros Port, at the revolution named Port South-east, and since Port Imperial, is defended by Isle Passe, a coral rock, one league off shore, on which is a circular battery and barracks. This island has no fresh water.

Port de la Savannah, or Souillac, on the south

Black River, on the south-west, has a good road before it, within coral reefs. It is defended by some batteries, but has not water for large ships within gun-shot of them. Small craft only can enter the river.

Off the north end of the Isle of France are several small volcanic isles, viz. Coin de Mire, three miles and a half north of Cape Malheureux (the north point of the island), with a safe channel between: this island is entirely composed of hot lava. Flat Island, north of Coin de Mire, is less elevated than the others; the shore is a white calcareous stone, and the other parts of a reddish color: on it is the appearance of a volcanic crater. Pigeon-House Island, a little west of Flat Island, is an enormous lump of basaltic lava, of a reddish-brown color.

Round Island rises in the form of a cone, about 260 feet high; its shores are rugged, precipitous, and inaccessible. Serpent's Island, the northernmost, is five leagues distant from the main. It has its name from small serpents being said to be found on it, although this reptile is unknown in the Isle of France, or any of the surrounding islets.

The administration of the isles of France and Bourbon was confided to a governor-general residing at the former island. Roderigue, or Diego Roys, is a dependency of the Isle of France, from which it is distant 100 leagues eastward. The south-west point of Mauritius is in long.

57° 16' E., lat. 20° 27' S. The north-east point is in long. 57° 35' E., lat. 19° 53' S.

MAURUS (Terentianus), a Latin poet and grammarian, who flourished under Trajan, Adrian, and the Antonines. He was governor of Syene in Upper Egypt about A. D. 140. He wrote an elegant poem, *De Literis, Syllabis, Pedibus, et Metris Horatii*; published by Mycillus at Frankfurt, in 1581, 8vo.; and by Mattaire in his *Corpus Poetarum*.

MAURY (Jean Siffrein), a modern French cardinal, was born in 1716 at Valbees, in the ancient comté de Venaission. He studied at Lyons, and, on entering into orders, became a celebrated preacher at Paris, and obtained a place in the academy, and the government of an abbey. When the revolution broke out, he was one of the representatives of the clergy in the states-general, where he distinguished himself by his eloquence in behalf of his order, and of royalty. On the dissolution of the constituent assembly, he went to Italy, where he became bishop of Nicaea, and in 1799 was made a cardinal. In 1807 he tendered his submission to Buonaparte, who in 1810 appointed him archbishop of Paris. The cardinal was obliged to leave France, it is said, on the fall of the emperor, and died at Rome in 1817. He published several works, the best of which is *An Essay on Eloquence*.

MAUSOLEUM, *n. s.* *Fr. mausolée*; Latin *mausoleum*. A name first given to a stately monument erected by his queen Artemisia to her husband Mausolus, king of Caria; a pompous funeral monument.

Mausolus, the name of a king of Caria, to whom Artemisia, his widow, erected a most stately monument, that has since been reckoned among the seven wonders of the world; calling it from his name *mausoleum*. It was sixty-three feet long, almost 411 feet in compass, and about thirty-five feet high, surrounded with thirty-six columns, that were beautified in a wonderful manner. Pliny has described it, lib. xxxvi.

Dr. A. Ross.

MAW, <i>n. s.</i>	} Sax. <i>maga</i> ; Gothic <i>maga</i> ; Swedish <i>maga</i> ; Teut. <i>magen</i> . The stomach of animals and crew of birds; used contemptuously of the human stomach. Mawkish and mawmish, apt to excite satiety or loathing; nauseous. Mawmet (see MAMMET), a puppet, or idol. Maw-worm, a worm often found in the stomach.
MAW'KISH, <i>adj.</i>	
MAW'KISHNESS, <i>n. s.</i>	
MAW'MET,	
MAW'MISH, <i>adj.</i>	
MAW'WORM, <i>n. s.</i>	

So oft in feasts with costly chances clad,
To crammed *maws* a sprat new stomach brings.

Salmg.

We have heats of duns, and of bellies and *maws* of living creatures, and of their bloods.

Bacon.

This hard meat is for stronger *maws*.

Bp. Hall.

Ordinary gut-worms loosen, and slide off from the intern tunick of the guts, and frequently creep into the stomach for nutriment, being attracted thither by the sweet chyle; whence they are called stomach or *maw-worms*.

Harvey on Consumptions.

Though plenteous, all too little seems,
To stuff this *maw*, this vast unhidebound corpse.

Volcan.

The serpent, who his *maw* obscene had filled,
The branches in his curled embraces held.

Dryden.

It is one of the most nauseous, *mawmish* mortifications, for a man to have to do with a pan-trail, fit for a

Ed. Strange.

Granivorous birds have the mechanism of a mill; their *maw* is the hopper which holds and softens the grain, letting it down by degrees into the stomach, where it is ground by two strong muscles; in which action they are assisted by small stones, which they swallow for the purpose. *Arbutnot.*

Flow, Welsted! flow, like thine inspirer beer,
So sweetly *maukish*, and so smoothly dull. *Pope.*

MAWES (St.), a post and market-town of Cornwall, on the east side of Falmouth Haven. Though but a hamlet of the parish of St. Just, two miles off, it had sent members to parliament ever since 1562, but was disfranchised by the reform bill. It consists of one street, under a hill, fronting the sea, and its inhabitants subsist by fishing. King Henry VIII. built a castle here, over against Pendennis, for the security of Falmouth Haven. A new chapel has been erected here, at the expense of the marquis of Buckingham. It has a governor, a deputy, and two gunners, with a platform of guns; and a market on Friday.

MAXENTIUS (Marcus Aurelius Valerius), son of the emperor Maximianus Hercules, was, by the voluntary abdication of Dioclesian, and of his father, raised to the purple, A. D. 306. He afterwards incited his father to re-assume his imperial authority: and perfidiously destroyed Severus. His successes were impeded by Galerius Maximianus, who opposed him with a powerful force; but the defeat of Galerius restored peace to Italy: and Maxentius went into Africa, where he rendered himself odious by his cruelty and oppression. He soon after returned to Rome, but, being defeated by Constantine fled back to the city; but, the bridge over the Tiber giving way, he fell into the river, and was drowned, A. D. 312. His cowardice and luxuries were as conspicuous as his cruelties.

MAXILLAR, *adj.* } Lat. *maxillaris*. Be-
MAXILLARY. } longing to the jaw-bone.

The greatest quantity of hard substance continued is toward the head; there is the skull, the teeth, and the *maxillary* bones. *Bacon.*

MAXIM, *n. s.* Fr. *maxime*; Lat. *maximum*. An axiom; a great or general principle a leading truth.

This *maxim* out of love I teach. *Shakespeare.*

It is a *maxim* in state, that all countries of new acquist, till settled, are rather matters of burden than strength. *Bacon.*

Yet, as in duty bound, they serve him on;

Nor ease, nor wealth, nor life itself regard;

For 'tis their *maxim*, love is love's reward.

Druden.

That the tetaper, the sentiments, the morality of men, is influenced by the example and disposition of those they converse with, is a reflexion which has long since passed into proverbs, and been ranked among the standing *maxims* of human wisdom.

Rogers.

It is hard to form a *maxim* against which an exception is not ready to start up; so, when the minister grows rich, the public is proportionably poor, as in a private family, the steward always thrives the fastest when the lord is running out. *Saift.*

It may be prudent for a writer, who apprehends that he shall not enforce his own *maxims* by his domestic character, to conceal his name, that he may not injure them. *Johnson.*

MAXIMIANUS (Galerius Valerius), a shepherd of Dacia, and afterwards a soldier, who was raised by Dioclesian, who gave him his daughter in marriage, to the imperial dignity. He conquered the Goths, Dalmatians, and Persians. He proved a cruel tyrant; persecuted the Christians; and died miserably A. D. 311. See *ROM.*

MAXIMILIAN I., emperor of Germany, signalled himself against the French, while he was king of the Romans, and after he was emperor entered into the army of Henry VIII. of England as a volunteer against that nation. He was a protector of learned men, and abolished an iniquitous tribunal styled *Judicium occultum Westphaliæ*. He composed some poems, and Memoirs of his own life. He died in 1519, aged sixty. See *GERMANY*.

MAXIMINUS (Caius Julius Verus), the son of a Thracian peasant, who, having displayed great bravery as a soldier, rose to the highest offices, after which he promoted a sedition among the soldiers against the emperor Alexander Severus, and upon his murder was elected in his place, A. D. 325. But, proving a cruel tyrant, he was assassinated by his soldiers near Aquileia, A. D. 236. See *ROM.* He is said to have been eight feet high; and his limbs, strength, and voracious appetite, in proportion.

MAXIMUS, a celebrated Cynic philosopher and magician of Ephesus. He instructed the emperor Julian in magic; and, according to some historians, from his conversation and company the apostasy of Julian originated; as he not only visited him, but even submitted his writings to his critical inspection. Maximus, however, refused to live in the court of Julian, who, far from being displeased, appointed him high pontiff in Lydia, an office which he discharged with great moderation and justice. When Julian went into the east, the magician promised him success, and that his conquests would be more numerous and extensive than those of Alexander. He persuaded his imperial pupil, that, according to the doctrine of metempsychosis, his body was animated by the soul of Alexander. After the death of Julian, Maximus was almost sacrificed to the fury of the soldiers; but was saved by his friends, and he retired to Constantinople. He was accused of magical practices, before the emperor Valens, and beheaded at Ephesus, A. D. 366. He wrote some philosophical and rhetorical treatises, some of which were dedicated to Julian. They are all now lost.

MAY, *aux. v.* } Preterite might. Sax. *mage*,
MAY-NE. } *magan*; Teut. *moge*; Goth.

ma, meiga, to have power. To be permitted; be at liberty; be possible; be by chance; expressing desire: may-be signifies perhaps; 'it may be that;' perchance.

Sin that I *may* not seen your Emelie,

I n'am but ded; ther n' is no remedie.

Chaucer. Cant. Tales.

May-be that better reason will assuage

The rash revenger's heart, words well disposed

Have secret power t' appease inflamed rage.

Furrie Queene.

May-be the amorous count solicits her

In the unlawful purpose. *Shakespeare.*

Be the workmen what they *may* be, let us speak of the work. *Bacon's Essay.*

This also tendeth to no more but what the king
may do : for what he may do is of two kinds ; what
he may do as just, and what he may do as possible.

Bacon.

What they offer is bare *may-be* and shift, and
scarce ever amounts to a tolerable reason. Creech.

Its words are not like the words of a wise man,
who is wary and careful that he slip not into mis-
take, interposing therefore his *may-be's* and per-
chances.

Burrow.

May you live happily, and long, for the service of
your country. Dryden's *Dedication to the Æneid*.

'Tis nothing yet, yet all thou hast to give ;
Then add those *may-be* years thou hast to live.

Dryden.

He that is sent out to travel, with the thoughts of
a man designing to improve himself, may get into
the conversation of persons of distinction.

Locke on Education.

How old *may* Phillis be, you ask,
Whose beauty thus all hearts engages !

To answer is no easy task,

For she has really got two ages.

Prior.

Make the most of life you may.

Bourne.

MAY, *n. s. & v. n.*

MAY-BUG, *n. s.*

MAY-DAY,

MAY-FLOWER,

MAY-FLY,

MAY-GAME,

MAY-LILY,

MAY-POLE,

MAY-WILD.

Lat. *Maius*. The fifth
month of the year ; hence
the early or spring time
of life : to may is to sport,
as in May-time : May-bug,
a chaffer : May-day, the
first of May : May-flower,
a plant : May-fly, an in-
sect : May-lily, the lily of

the valley : May-weed, a species of camomile :
May-game and May-pole, a sport of the month
of May ; a pole often danced round on the first
of that month.

The *May-weed* doth burne, and the thistle doth
fret,

The fitches pull downward both rie and the wheat.

Tusser.

When merry *May* first early calls the morn,

With merry maids a *maying* they do go. Sidney.

In the month of *May* the citizens of London (of
all estates) lightly in every parish, or sometimes two
or three parishes joining together, had their several
mayings, and did fetch in *May-poles*.

Stowe's London.

Maidens are *May* when they are maids,

But the sky changes when they are wives.

Shakspeare.

My liege

Is in the very *May-morn* of his youth,

Ripe for exploits. Id. Henry V.

'Tis as much impossible,

Unless we swept them from the door with cannons,

To scatter 'em, as 'tis to make 'em sleep

On *May-day* morning.

Shakspeare.

The plague, they report, hath a scent of the *May-*
flower.

Bacon's Natural History.

The king this while, though he seemed to account
of the designs of Perkins but as a *May-game*, yet had
given order for the watching of beacons upon the
coasts.

Bacon.

May must be drawn with a sweet and amiable
countenance, clad in a robe of white and green, em-
broidered with daffodils, hawthorns, and blue-bottles.

Peacham.

Hail ! bounteous *May*, that dost inspire

Mirth and youth, and warm desire ;

Woods and groves are of thy dressing,

Hill and dale doth boast thy blessing.

Milton.

Cupid with Aurora playing,

As he met her once a *maying*. Id.

He loves the *May-fly*, which is bred of the cod-
worm or caddis. Walton's Angler.

Like early lovers, whose unpractised hearts

Were long the *May-game* of malicious arts,

When once they find their jealousies were vain,

With double heat renew their fires again.

Dryden.

Amid the area wide she took her stand ;
Where the tall *May-pole* once o'er-looked the strand.

Pope.

The sweeping blast, the sky o'ercastr,

The joyless winter-day,

Let others fear, to me more dear

Than all the pride of *May*.

Burns.

MAY is the fifth month in the year, reckoning
from January : and the third, counting the year
to begin with March, as the Romans anciently
did. It was called *Maius* by Romulus, in re-
spect to the senators and nobles of his city, who
were named *maiores* ; as the following month
was called *Junius*, in honor of the young men of
Rome, in *honorem juniorum*, who served him in
the war. Some think, however, that it was thus
called from *Maia*, the mother of Mercury, to
whom they offered sacrifice on the first day of it.
In this month the sun enters Gemini, and the
plants of the earth in general begin to flower.—
This month was esteemed favorable to love ; and
yet the ancients look on it as an unhappy month
for marriage. The original reason may perhaps
be referred to the feast of the Lemures, which
was held in it. Ovid alludes to it in the fifth
book of his *Fasti*.

MAY, or MAIUS (John Henry), a Lutheran
divine, born at Pfortzheim, in 1653. He was
professor of Hebrew and oriental languages, and
minister at Giessen, where he died in 1719. He
published, 1. *Historia Animalium Scripturæ*
Sacræ : 2. *Vita Joannis Reuchlini* : 3. *Synopsis*
Theologiæ Symbolicæ : 4. *Historia Reformatio-*
nis Lutheri : and other works.

MAY (Thomas), an English poet and historian
of the seventeenth century, born of an ancient
but decayed family in Sussex. He was educated
at Cambridge, and afterwards removed to Lon-
don, where he contracted a friendship with se-
veral eminent persons. While he resided at
court, he wrote five plays, which are extant. In
1622 he published a translation of Virgil's *Geor-*
gics, with annotations ; in 1625 a poem on Ed-
ward III., and a translation of Lucan's *Pharsalia*,
which poem he continued down to the death of
Julius Cæsar, both in Latin and English verse.
Upon the breaking out of the civil wars, he ad-
hered to the parliament ; and in 1647 he pub-
lished *The History of the Parliament of England*,
which began November 3d, MDCXL., with a
short and necessary view of some precedent
years. In 1649 he published *Historia Parli-*
amenti Angliæ Breviarium, in three parts, which
he afterwards translated into English. He wrote
the *History of Henry II.* in English verse. He
died in 1650, and his death was imputed to his
having tied his night cap too close, and thus oc-
casioned his suffocation ; but the facetious
Andrew Marvel, in a poem of 100 lines, makes
him a martyr of Bacchus. Soon after the resto-
ration, his body, with those of several others, was
dug up, and buried in a pit in St. Margaret's
church-yard ; and his monument, which was

erected by the appointment of parliament, was taken down and thrown aside.

MAY, a small island of Scotland, in the frith of Forth, six miles south from the nearest part of the coast is about one mile long, and three-quarters of a mile broad. It has a well of fine water, a small lake, and excellent pasturage for sheep. Here are the ruins of a priory, which formerly belonged to the abbey of Pittenweem; and a chapel dedicated to St. Adrian, who was killed by the Danes in 870, and buried in this place. An excellent light-house has lately been erected upon it, by the commissioners of northern lights, who in 1816 rebuilt the tower and fitted it up with reflectors. It abounds with sea-fowl, and rabbits.

MAYENNE, DEPARTMENT OF THE, France, is formed out of the former province of Bas Maine, and takes its name from the river, which waters it from north to south. The principal place of this prefecture is Laval; it is divided into three arrondissements; Laval, containing 111,228 inhabitants; Chateau-Gontier, 72,138; and Mayenne 160,526, being a total population of 343,892 souls, on an area of 2319 square miles. It is subdivided into twenty-seven cantons, and 283 communes, yielding a territorial revenue of 13,093,600 francs, and forms a part of the fourth military division, is in the diocese of Mans, and belongs to the royal court of Angers. It further comprises three electoral arrondissements, which send five members to the chamber of deputies. This department is bounded by those of the Manche, and the Orne, on the north; by that of the Sarthe on the east; by the Maine-et-Loire on the south; and on the west by the Ile-et-Vilaine.

The face of the country is diversified with cultivated plains, woody mountains, extensive forests, and uncultivated and sandy heaths. There are few natural meadows, yet by the means of the fallows the inhabitants rear a great number of cattle, which constitute their chief riches. The valleys, crossed by the Sarthe and the Mayenne, produce a considerable quantity of March wheat, though the coldness of the soil does not permit the growth of winter wheat. Flax and hemp, and abundance of fruit trees, particularly apples, are cultivated here, and not less than 600,000 hectolites of cider are made annually. There are also some vineyards producing tolerably good wines. The soil, mostly sandy, is cultivated with horses, and generally yields sufficient for the inhabitants. It comprises 25,781 hectares of forests chiefly oak, beech, and chestnut, and 600 hectares of vineyards; at an average produce of twenty-four francs seventy-eight centimes per hectare of cultivated land.

Besides the productions already mentioned this district yields very fine rye, barley, oats, buckwheat, &c.; horses of a small size, good milk cows, numerous flocks of sheep, whose wool is highly esteemed, and a great quantity of bees. There are also iron mines, and quarries of marble, freestone, and slate. The inhabitants carry on manufactures of linen, calicoes, handkerchiefs, table-cloths, serges, thread, and cotton yarn; they have also bleaching grounds, blast furnaces, wire forges, and paper-mills. The

trade consists chiefly in the productions already referred to, as well as honey, wax, poultry and wool.

This department is watered by the Mayenne, which is navigable, the Ernée, the Jouane, the Colmont, the Vicoin, the Vaise, the Oudon, and the Erve. The great roads of Rennes, Alençon, Mans, and Tours, traverse it in different directions.

MAYENNE, an ancient and fine town of the department of this name, in France, the chief place of a subprefecture, having a lower court of judicature, a tribunal of commerce, and a board of manufactures. It is a post town, containing about 9556 inhabitants. Situated on the declivities of two hills, which rise from the banks of the Mayenne: it is irregularly built, its streets being steep and close; but the general appearance of it is pleasing. There are two public squares, one of which is adorned with a handsome fountain. In ancient times it was a very strong town, defended by considerable fortifications, and a castle which was considered impregnable. It was taken by the English in 1425 after a siege of three months.

The inhabitants manufacture linen, hempen and cotton cloths, handkerchiefs, and calicoes; and have cotton spinning factories, bleaching grounds, dye-houses, and many forges in the neighbourhood. They also carry on a considerable trade in these articles, and in wine, brandy, and iron, near the town. In a very picturesque situation on the right bank of the river, stands the ancient seat of the duke of Mayenne. This place is about 126 miles west of Paris, twenty-four N. N. E. of Laval, and forty-three W. S. W. of Alençon.

MAYENNE, a river of France, which rises at the village of Maine, near Lignerres-la-Doucelle, in the arrondissement of Alençon, department of the Orne, France. It then passes on to Couptrain, Ambrières, Mayenne, Laval, Chateau-Gontier, and Angers, and falls into the Loire at Bouche Maine, a little below Pont-de-Cé. It is navigable as far as St. Jean for rafts; and for boats as far as Laval. This river serves for the conveyance of corn, wine, salt, hemp, flax, timber, coal, earthenware, resin, caulking stuff, pitch, building materials, &c. On its junction with the Sarthe it takes the name of the Maine, and its whole course is about 125 miles, receiving on its way the Ernée, the Oudon, the Sarthe, and several other rivers.

MAYER (John Frederick), a Lutheran divine, born at Leipzig, in 1650. He was superintendent of the churches in Pomerania, and professor at Stettin. He wrote several tracts against Popery; but his principal work is his *Bibliotheca Biblica*; Rostock, 1713. He died in 1712.

MAYERNE (Louis de), a celebrated French writer of the sixteenth century. He wrote, 1. *The General History of Spain*: 2. *Monaichie Aristocratique*, dedicated to the states general. He was a zealous protestant, and suffered much on account of his religion. He therefore retired to Geneva in 1572. He married Louisa Masson, daughter of Anthony Le Masson, treasurer of the army in Piedmont, to Francis I. and Henry II. His son Sir Theodore de MAYERNE, M. D.

and baron of Aulbone, was born in 1573. He studied physic at Montpelier, where he took his degrees; and was made physician in ordinary to Henry IV., who promised to promote him, provided he would change his religion. But he chose rather to accept of an invitation from king James I., of Britain, who made him first physician to himself and his queen, in which office he served the royal family till he died at Chelsea, in 1655. His works were printed at London, in folio, 1700; and contain, 1. *Consilia, Epistolæ, et Observationes*; 2. *Pharmacopœia, varietque Medicamentorum formulæ*. He wrote also a *Dispensatory*, and an *Apology* for his practice, against the faculty at Paris.

MAYNE (Jasper), D.D., an eminent English poet and divine in the seventeenth century, who was educated at Oxford. While king Charles I. resided at Oxford, he was one of the divines appointed to preach before him. He published in 1647 a piece entitled *Ὀχλομαχία*, or, The people's war examined according to the principles of reason and scripture. In 1648 he was deprived of his studentship at Christ Church, and two livings; but was restored with king Charles II., who made him his chaplain, and archdeacon of Chichester; which posts he held till he died. Dr. Mayne was held in high esteem, both as a preacher and a man of strict virtue and exemplary behaviour. In his younger years he wrote two plays, viz. 1. *Amorous War*, a tragi-comedy; 2. *The City Match*, a comedy; printed in Dodsley's collection, vol. 10. He also published a poem upon the naval victory by the duke of York over the Dutch, printed in 1665, and translated from the Greek part of Lucian's *Dialogues*.

MAYNWARING (Arthur), an eminent political writer of the eighteenth century. He studied several years at Oxford, and then went to Cheshire, where he lived some time with his uncle Mr. Francis Cholmondeley, a gentleman attached to the house of Stuart. Here he prosecuted his studies with great vigor; and coming up to London applied to the study of the law. He had been hitherto very zealous in anti-revolutional principles, and wrote several pieces in favor of king James II.: but, after being introduced to the duke of Somerset and the earls of Dorset and Burlington, began to entertain very different notions in politics. His father left him an estate of nearly £800 a year, but so incumbered with mortgages that the interest amounted to almost as much as the revenue. After the peace he went to Paris, where he became acquainted with M. Boileau. On his return he was made a commissioner of the customs, in which post he distinguished himself by his skill and industry. He was a member of the Kit-kat Club, and was considered as one of its chief supports by his pleasantry and wit. In the beginning of queen Anne's reign the lord treasurer Godolphin made him a present of a patent for the office of auditor of the imposts, worth about £2000 a year. He had a considerable share in the *Medley*, and was author of several other pieces. Sir Richard Steele dedicated the first volume of the *Tatler* to him.

MAYO, a county in the province of Con-

naught and kingdom of Ireland, bounded on the north and west by the Atlantic Ocean; on the south by Galway county, from which it is separated by the noble estuary of the 'Killarney,' and by the great lakes of Corrib and Mask; on the east by the counties of Roscommon and Sligo, from the latter of which it is divided by the Moy River and Killala Bay. A careful and exact map of this county and laid down on trigonometrical principles, was finished in 1816 by Mr. William Bald: it was protracted on a scale of three inches to an English mile, for the county, and of four inches to the mile for the barony maps. The superficial contents amount to 836,450 acres, which are divided into nine baronies, viz. *Barrishoole, Carra, Clannmorris, Costello, Erris* half barony, *Gallen, Kilmaine, Murrisk, Tyrawley*. The number of parishes is seventy-six, and of townlands 13,260. About 10,000 children receive the benefit of education at the public and private schools. The surface of this large shire is undulating, mountainous, adorned with many beautiful lakes and rivers some of the latter being subterranean, and is remarkably picturesque. The highest of the Mayo Hills, called *Knock-na-Mulree*, attains an elevation of 2724 feet above sea level; *Nephin* is but fifty-four feet lower; and the beautiful hill of *Croash Patrick*, so famed in story, raises his bold cliffs from the swelling waves of the Atlantic to a height of 2528 feet. The *Barnagee Hills* derive peculiar beauty from the irregularity of their outline, and the acquisition of cultivation carried almost to their summits.

Much of this great county is at present unprofitable; the inland lakes occupy a surface of 35,768 acres, and the bogs cover an area of 262,420. The peasantry here are chiefly engaged in husbandry, fishing, and the manufacture of linen cloth. The northern and western baronies are in a wild and unprofitable condition: here tillage makes but slow progress, nor were its shores, or harbours, or maritime population almost accessible by land, until the formation of the new road through *Erris* by *Mr. Nimmo*: but in the southern baronies tillage now begins to supersede pasturage. The coast of Mayo, singularly adorned with islands, whose inhabitants from their natural position appear peculiarly calculated for a seafaring life, is found to be adjacent to valuable fishing banks. Here cod, hake, ling, herrings, and the sun fish or basking shark, are taken in large quantities. The last of these once presented a prospect of occupation and of wealth to the islanders on this bold coast, but poverty forbade the happy consequences; for the banks which these fish visit could not be approached by such miserable craft as the fishermen were able to procure; besides, the distance from land, and the want of an asylum harbour to escape to, on the approach of storm, rendered the undertaking in the highest degree perilous. The bounty of parliament, and the wisdom and judgment of the fishery board acting under its appointment, have now removed the danger of the undertaking, by the erection of break-waters, quays, piers, &c., in the deep bays and creeks along the coast: viz

in the Killeries, Clew Bay, Black-sod Bay, Killalla, &c. The beneficial consequences of this measure of the legislature will be most fully demonstrated by a statement of the number of boats, and of hands employed in Westport alone in 1827, viz. of the former 1180, of the latter 5169.

The coarse linen manufacture of Mayo has improved for some years back at a regular and a rapid pace. This, probably, is attributable to the capitalists in the north of Ireland directing their attention latterly to the cotton trade, causing thereby a tendency in the linen manufacture towards the western counties in search of cheaper labor. This opens a field also for the introduction and growth of flax, no soil being better adapted for that purpose than the peat of this coast, when manured by the calcareous sea sand which is found here in great abundance. The resources then of this county are considerable: the fisheries which, if still protected by the valuable board which may be said to have created them, will nowhere in Ireland be more productive: the linen manufacture, even now highly profitable, would be established here by the cultivation of flax. Agriculture might still be made to contribute largely to the support and employment of the people, having ample facilities of export for all produce of that description, at the noble harbours on the coast of this county. The chief towns of Mayo are Castlebar, Ballinrobe, Newport, Clare, Foxford, Swineford, Westport, Ballina, and Mayo. Newport possesses an excellent harbour: near Westport is the beautiful demesne of the marquis of Sligo. Ballina enjoys the most extensive and profitable salmon fishery in Ireland: and to Mayo there is attached much historic interest: here was a famous cathedral and university, at the latter of which those Saxon youths of rank who were converted to Christianity received their education, amongst whom are numbered Oswald, and Alfred the Great, of England. This decayed town is sometimes called 'Mayo of the Saxons,' and the ruins of the university, the cathedral and the ancient town, may still be traced. Mayo gives the title of earls to the family of 'Bourke.'

MAYO, one of the Cape de Verde Islands, off the western coast of Africa, about twenty-one miles in circumference, with a rocky coast, which, on the north and north-east side, is also full of shoals. On the other sides, Dampier says, the only danger is from the rocky promontories, which are easily avoided. There are two hills of some magnitude, the rest of the island being flat and barren, and laboring under an extreme want of water. The only valuable commodity which it produces is salt, evaporated in a large bay two miles in length, and half a mile in breadth, communicating with the sea by a narrow channel, through which the water enters only at high tides. The natives are negroes subject to Portugal, and they have adopted the Portuguese language and manners. They are extremely poor. At one time we exported salt so largely from this place as to detain a ship of war here to protect the trade, thirty miles south of Bonavista. Long. 23° 8' W., lat. 15° 10' N.

MAY'OR, *n. s.* } *Fr. maire; Ital. maior;*
MAY'ORALTY, } *Lat. major.* The chief ma-
MAY'ORESS. } gistrate of a corporation:
office of a mayor: lady of a mayor.

When the king once heard it; out of anger,
He sent command to the lord mayor strait
To stop the rumour. *Shakspeare. Henry VIII.*

There was a sharp prosecution against Sir William Capel, for misgovernment in his *mayoralty*.

Bacon's Henry VII.
It is incorporated with the *mayoralty*, and nameth
burgesses to the parliament. *Carew.*
The mayor locked up the gates of the city. *Knolles.*

Wou'dst thou not rather chuse a small renown,
To be the mayor of some poor paltry town?

Dryden.

MAYOR, anciently meyer, is derived from the British *miret*, i. e. to keep, or from the old English *maier*, power, from the Latin *major*. King Richard I. in 1189 changed the bailiff of London into a mayor, and king John made the bailiff of king's Lynn a mayor in 1204. Norfolk did not obtain this title for its chief magistrate till 1419, the seventh year of king Henry V., since which there are few towns of note but have had a mayor appointed. Mayors of corporations are justices of peace *pro tempore*, and they are mentioned in several statutes; but no person shall bear any office of magistracy concerning the government of any town, corporation, &c., who has not received the sacrament according to the church of England within one year before his election, and who shall not take the oaths of supremacy, &c. If any person intrudes into the office of mayor, a *quo warranto* lies against him, upon which he shall not only be ousted, but fined. Where the mayor of a corporation is not chosen on the day appointed by charter the next officer in place shall, the day after, hold a court and elect one; and, if there be a default or omission that way, the electors may be compelled to choose a mayor, by a writ of *mandamus* from the king's bench. Mayors, or other magistrates of a corporation, who shall voluntarily absent themselves on the day of election, are liable to be imprisoned, and disqualified from holding any office in the corporation. The office of mayor in England is nearly synonymous with that of provost in Scotland.

MAYOR'S COURTS. To the lord mayor and city of London belong several courts of judicature. The highest and most ancient is that of the hustings, destined to secure the laws, rights, franchises, and customs of the city. The second is a court of request, or of conscience. The third is the court of the lord mayor and aldermen, where also the sheriffs sit: to which may be added two courts of sheriffs and the court of the city orphans, whereof the lord mayor and aldermen have the custody. Also the court of common council, which is a court or assembly wherein are made all by-laws which bind the citizens of London. It consists, like the parliament, of two houses: an upper, consisting of the lord mayor and alderman; and a lower, of a number of common council-men, chosen by the several wards, as representatives of the body of the citizens. In the court of common council

are made laws for the advancement of trade, and committees yearly appointed, &c. But acts made by them are to have the assent of the lord mayor and aldermen by stat. 11 Geo. I. Also the chamberlain's court, where every thing relating to the rents and revenues of the city, as also the affairs of servants, apprentices, &c., are transacted. Lastly, to the lord mayor belong the court for the conservation of the river Thames; another of gaol delivery, held usually eight times a year, at the Old Bailey, for the trial of criminals. There are other courts, called wardmotes or meetings of the wards; and courts of halmote, or assemblies of the several guilds and fraternities.

MAYORGA, a cluster of three or four islands in the South Pacific Ocean, the largest being about sixty miles in circuit. They were discovered by Don Francisco Antonio Maurella in 1780, and are the same islands which were visited by Edmunds in 1791, and to which, including several others, he gave the name of Howe's Islands. They are fertile and well cultivated, producing the various fruits and roots of the climate: they also abound in the cloth plant. The natives are tall and robust, subject to Otahite, which sends a governor here.

MAYOW (John), LL.D., a learned physician, born at Cornwall in 1645. He was fellow of All Souls College, Oxford; and, though he took his degrees in law, practised physic. He was a celebrated chemist, and his works were published at Oxford in 8vo. 1674. He died at London in 1679.

MAY-WEED. See **ANTHEMIS**.

MAZA, among the Athenians, was a sort of cake made of flour boiled with water and oil, and set, as the common fare, before such as were entertained at the public expense in the prytaneu or common hall.

MAZAGAN, or Castillo Real, a sea-port of Morocco, built in 1500 by the Portuguese, who retained it till 1762. A small dock has been formed, but large vessels must anchor nearly six miles out at sea to keep clear of Cape Azamore. This place once carried on a considerable trade in corn, but has of late sunk into insignificance. The Moors have in some instances taken away the timber of the houses, and left the walls. The air and water are said to be excellent. Long. 8° 46' W., lat. 32° 54' N.

MAZAGONG, a town of Hindostan, on the island of Bombay, inhabited by descendants of the Portuguese. It has two Catholic churches, and a dock for small vessels. The mangoes which grow here are said to be the best in the world, especially those of one large tree, which has a guard placed over it during the fruit season. This was frequently the rendezvous of the Mogul fleet, in the seventeenth century.

MAZANDERAN, a mountainous province of Persia, on the shores of the Caspian. It abounds in swamps and forests of oak: the valleys are also fertile in the finest rear. Sugar and silk are also produced to a considerable extent. Winter and spring are healthy; but the summer and autumnal heats cause such exhalations from the fens and marshes, as to render the air very insalubrious, when agues and dropsies prevail: the

natives, in general, have a sallow and bloated appearance. Snow falls, but never lies long; and the rivers generally overflow in summer. The natives have been reckoned the most warlike in Persia. A considerable number of rivers rise here and fall into the Caspian, but none have a long course. The commerce is considerable, and the villages neatly built. Some of the roads are bad; but there is a causeway, extending about 300 miles from Kisliar to Astrabad. The capital is Sari; but Balfrush is the larger town. Fera-bad and Amul are also chief towns.

MAZ'ARD, *n. s.* Fr. *machoire*; of Lat. *maxilla*. The jaw. 4

Now my lady Worm's chapless, and knockt about the mazard with a sexton's spade. *Shakspeare.*

Where thou might'st stickle without hazard

Of outrage to thy hide and mazard. *Hudibras.*

MAZARINE (Julius), a celebrated cardinal and prime minister of France, born at Piscina in Abruzzo, in 1602. After finishing his studies in Italy and Spain he entered into the service of cardinal Sachetts, and became well skilled in political economy, and in the interests of the princes at war in Italy. Cardinal Richelieu highly esteemed him; as did also cardinal Antonio, and Louis XIII. who procured him a cardinal's hat in 1641. Richelieu made him one of the executors of his will; and during the minority of Louis XIV. he had the charge of affairs. At last he became an object of envy to the nobility, which occasioned a civil war; whereupon Mazarine was forced to retire, a price was set on his head, and his library sold. Notwithstanding this, he afterwards returned to the court with more glory than ever; concluded a peace with Spain, and a marriage treaty between the king and the infant. This treaty is reckoned his master-piece in politics, and procured him Louis's entire confidence: but at last his continual application to business threw him into a disease, of which he died at Vincennes, in 1661. He was of a mild and affable temper. He possessed at one time the bishopric of Metz, and the abbey of St. Arnault, St. Clement, and St. Vincent; that of St. Dennis, Clugny, and Victor of Marseilles; and of St. Michael at Soissons. He founded Mazarine College, or the college of the four nations, at Paris. A collection of his letters was published; the best edition is that of 1745, in 2 vols. 12mo.

MAZE, *n. s. & v. a.* } Sax. *maye*, a whirl-
MA'zy, *adj.* } pool; Belg. *meisen* is
perplexity, confusion, mistake. A labyrinth;
perplexing state or contrivance; uncertainty or
perplexity of mind: to maze is, to bewilder;
confuse: mazy, confused; perplexed.

He left in himself nothing but a maze of longing
and a dungeon of sorrow. *Sidney.*

Much was I mazed to see this monster kind,

In hundred forms to change his fearful hue.

Spenser.

While they study how to bring to pass that religion may see; but a matter made, they lose themselves in the very maze of their own discourses, as if reason did even purposely forsake them, who of purpose forsake God, the author thereof. *Hooker.*

I have thrust myself into this maze,

Haply to wive and thrive as best I may.

Shakspeare.

Others apart sat on a hill retired,
In thoughts more elevate, and reason'd high
Of providence, foreknowledge, will and fate,
Fixed fate, free-will, foreknowledge absolute,
And found no end, in wandering *mazes* lost.

Milton.

How from that sapphire fount the crisped brooks,
Rolling on orient pearl and sands of gold,
With *mazy* error, under pendant shades,
Ran nectar.

Id.

For want of this all human wisdom, was so blind
and lame--nothing but confusion and dissatisfaction
arising from mere ratiocination, which, being desti-
tute of light and aid from heaven, doth ever grope
in the dark, is bewildered in *mazes* of intricacy,
wherein things lie involved.

Barrow.

The Laphiæ to chariots add the state
Of bits and bridles, taught the steed to bound,
To run the ring and trace the *mazy* round.

Dryden.

The ways of heaven are dark and intricate,
Puzzled with *mazes* and perplexed with error,
Our understanding searches them in vain.

Addison.

He, like a copious river, poured his song
O'er all the *mazes* of enchanted ground.

Thomson.

As some must trifle away age, because they trifled
away youth, others must labour on in a *maze* of
error, because they have wandered there too long to
find their way out.

Bolingbroke.

While the still busy world is treading o'er
The paths they trod five thousand years before,
Thoughtless as those who now life's *mazes* run,
Of earth dissolved, or an extinguished sun.

Young.

MAZEIRA, an island on the eastern coast of
Arabia, about sixty miles long and eight broad.
There is a passage between it and the Main, and
it has a village on the eastern shore, but is seldom
visited by Europeans. The north point is in
long. 59° 40' E., and lat. 20° 35' N.

MAZEPPA (John), a hetman of the Cossacs,
was born in Podolia, of a noble, but poor Polish
family, and became page to the king John Casim-
mir. An intrigue of his with a married lady
having been discovered by her husband, Mazeppa
was fastened to the back of a wild horse, and
left to his fate: lord Byron formed his poem
of this name on this fact. The animal having
been bred in the Ukraine deserts directed his
course thither, and expiring at length with fa-
tigue dropped beneath his miserable rider, who
was found by the peasants of the country half
dead. Their care, however, recovered him, and
he took up his residence here. His talents soon
raised him to eminence, and, the hetman of the
Cossacs having in 1687 been deposed, Mazeppa
was elected his successor. In this situation he
acquired the confidence of Peter the Great, who
bestowed on him the title of privy counsellor, and
the coron of St. Andrew. Created also prince
of the Ukraine, he entered into a secret league
with Charles XII.; but this alliance being disco-
vered, and his capital, Batourin, having been
taken, he was obliged to join the Swedish king
who was advancing towards the Ukraine. The
battle of Pultowa was the result of his counsels;
after which he took refuge at Bender, where he
died in 1709.

MAZER, *n. s.* Scot. and Teut. *masin*; Goth.
mansur; Belg. *muser*; Wel. *masarn*. A drink-
ing cup, often made of the knotty part of the
maple.

Then, lo! Perigot, the pledge which I plight,
A *mazer* y wrought of the maple ware,
Wherein is enchased many a fair fight
Of bears and tigers that make fierce war.

Spenser.

Virgil observes, like Theocritus, a just decorum
both of the subject and persons, as in the third pa-
toral, where one of his shepherds describes a bow
or *mazer*, curiously carved.

Dryden.

MAZZARA, a town of Sicily, in the Val
Mazzara, remarkable for the number of i-
churches and convents. It has also an hospita-
a great public school, and a Monte di Pietà, a
public pawn shop. It exports brandy, win-
oil, and soda. The harbour is large, but exposes
Forty-five miles south-west of Palermo. Lon-
12° 28' E., lat. 37° 46' N.

MAZZARA, VAL DI, one of the three provinces
of Sicily, comprises the western and most nar-
row part of the island, and is surrounded on the
north, south, and west, by the Mediterranean.
On the east it is bounded by the Val di Noti
and the Val de Demona. Its territorial extent
computed at three-eighths of the island, or about
4700 square miles. Intersected by several chain
of mountains, it is still on the whole the most
fertile part of Sicily; and produces corn, flax,
hemp, and fruits. Its fisheries, particularly of
tunnies and sardels, are extensive. The wind
from the sea greatly counteract the excessive heat
of summer. The capital of this province, and of
the whole island, is Palermo. Inhabitants about
640,000.

ME, *pron.* Sax. *me*, *micr*; Goth. *meig*, *me*
Dan. *mij*; Span., Port., and Latin, *me*; G.
mu. The objective case of I; sometimes quantu-
used for I and as an expletive, as in 'me thinks;
'I followed me close.'

He presently, as greatness knows itself,
Steps *me* a little higher than his vow

Made to my father, while his blood was poor.

Shakspeare.

He thrust *me* himself into the company of three or
four gentlemanlike dogs, under the duke's table.

Id.

I followed *me* close, came in foot and hand, and
with a thought, seven of the eleven I paid.

Id.

Me rather had, my heart might feel your love,
Than my displeased eye sees your courtesy.

Id.

Me, only *me*, the hand of fortune bore,

Unblessed to tread an interdicted shore.

Pope.

I would not have a slave to till my ground;
To carry *me*, to fan *me* while I sleep,
And tremble when I wake, for all the gold
That sinews bought and sold have e'er earned.

Corper.

MEACO, a city of Niphon, in Japan, for-
merly the metropolis of that empire; and said to
have been at that time twenty miles long and
nine broad. It is still the ecclesiastical capita-
of Japan. The temples are magnificent, and
the imperial palace a species of town. Including
those attached to the court, and the monks and
nuns (who amount to 52,000), the whole number
of inhabitants is 529,000. Meaco is the centre
of all the literature and science of the empire,
the imperial almanack being printed here, as
well as most of the books of the empire. A
number of the finer manufactures, particularly
japan-work, painting, carving, &c., are also car-
ried on. Long. 153° 30' E., lat. 35° 24' N.

MEA'COCK, *n. s. & adj.* Fr. *mes coq*.—Skinner. An uxorious or effeminate man; tame; cowardly.

'Tis a world to see,
How tame, when men and women are alone,
A meacock wretch can make the curtest shrew.
Shakespeare.

MEAD, *n. s.* } Sax. mæd, mæðfe, mæð,
MEAD'OW, } mowed; Teut. *mad*. From
MEADOW-SAFFRON. } Mow, which see. That
which is mowed; a grass-field kept for mowing;
any grassy or watery ground. Meadow-saffron
is defined below.

Where all things in common do rest,
Corne feed with the pasture and mead,
Yet what doth it stand you instead?

Tassers's Husbandry.
Paints her, 'tis true, with the same hand which
spreads,
Like glorious colours, through the flow'ry meads,
When lavish Nature with her best attire
Clothes the gay spring, the season of desire.
Waller.

A hand select from forage drives
A herd of beeves, fair oxen, and fair kine,
From a fat meadow ground.

Milton's Paradise Lost.
Yet ere to-morrow's sun shall show his head,
The dewy paths of meadows we will tread,
For crowns and chaplets to adorn thy bed.
Dryden.

His art survived the waters; and ere long,
When man was multiplied and spread abroad
In tribes and clans, and had begun to call
These meadows and that range of hills his own,
The tasted sweets of property began
Desire of more.
Cooper.

The meadow-saffron hath a flower, consisting of
one leaf, shaped like a lily, rising in form of a small
tube, and is gradually widened into six segments;
it has likewise a solid bulbous root, covered with a
membranous skin.
Miller.

MEAD, *n. s.* Sax. mæbo; Goth. *maid*; Swed.
miad; Belg. and Pol. *miad*, *meede*; Rus. *miudh*;
all perhaps of Gr. *μέθυ*, wine. A fermented
drink made of honey and water. See below.

Though not so solutive a drink as mead, yet it will
be more grateful to the stomach.
Bacon.

He sheers his over-burdened sheep;
Or mead for cooling drink prepares,
Of virgin honey in the jars.
Dryden.

MEAD is a wholesome agreeable liquor, and
was anciently much used in Britain. One of
the best methods of preparing mead is as follows:
into twelve gallons of water slip the whites of
six eggs; mixing these well together, and to the
mixture adding twenty pounds of honey. Let
the liquor boil an hour, and when boiled add
cinnamon, ginger, cloves, mace, and rosemary.
As soon as it is cold put a spoonful of yeast to it,
and tun it up, keeping the vessel filled as it
works: when it has done working stop it up
close, and bottle it off. Then deposit it in a
cellar of cool temperature for six or eight months.
Some prefer it without the aromatic spices.
Thorley advises to put three pounds of the finest
honey to one gallon of water, and two lemon
peels to each gallon; boil it half an hour, scum
it well; then put in, while boiling, lemon peel;
work it with yeast. Let it stand five or six months,
and bottle it off for use. If it is to be kept for

years, put four pounds to a gallon of water.
This, he adds, will equal the best foreign wine.
It is still used at festivals in the western parts of
the island. It is esteemed more wholesome than
any of the spirits now in common use; and,
when properly kept, equals Tokay in strength
and flavor.

MEAD (Richard), M. D. and F. R. S., a cele-
brated English physician, antiquarian, and natu-
ralist, born at Stepney, where his father had been
minister. At sixteen years of age Richard was
sent to Utrecht, where he studied three years
under Gravivius; and then choosing the profession
of physic, he went to Leyden, where he at-
tended the lectures of the famous Pitcairn on
medicine, and of Herman on botany. Having
also spent three years in these studies, he went
with his brother and two other gentlemen to
Italy, and at Padua took his degree of M. D.
and Phil. D. in 1695. Afterwards he spent
some time at Naples and Rome; and returning
home in 1696 settled at Stepney, where he
married, and practised physic with great suc-
cess. In 1703, Dr. Mead having communicated
to the Royal Society an analysis of Dr. Bonomo's
discoveries relating to the cutaneous worms that
generate the itch (inserted in the Philosophical
Transactions), he was chosen F. R. S. He was
soon after elected physician of St. Thomas's
Hospital, and employed by the surgeons to read
anatomical lectures in their hall, which obliged
him to remove into the city. In 1707 he received
a diploma of M. D. from the university of Ox-
ford; and being patronised by Dr. Radcliffe, he
succeeded him on his death, at his house in
Bloomsbury Square, and in the greatest part of
his business. In 1727 he was made physician
to King George II., whom he had served in that
capacity while prince of Wales; and afterwards
his two sons-in-law, Dr. Nichols and Dr. Wilmot
were appointed his coadjutors. He was intimate
with Garth, Arbuthnot, and Freind; and kept
up a constant correspondence with the great
Boerhaave, who had been his fellow-student at
Leyden. He caused the beautiful and splendid
edition of Thuanus's history to be published in
1713, in 7 vols. folio; and by his assiduity Mr.
Sutton's invention of drawing foul air from
ships, &c., was carried into execution, and the
ships in his majesty's navy provided with this
useful machine. During nearly fifty years he
was at the head of his profession, which brought
him one year above £7000, and for several years
between £5000 and £6000. His library con-
sisted of 10,000 volumes, of which his Latin,
Greek, and oriental MSS., formed an important
part. He had a gallery for his pictures and
antiquities, which cost him great sums. His
reputation was so universally established, that he
corresponded with all the principal literati in
Europe. Even the king of Naples sent for a
complete collection of his works; and in return
made him a present of the first two volumes of
Signior Bajardi, which may be considered as the
first specimen of the antiquities of Herculaneum.
That prince also invited him to his palace, to
show him those valuable monuments of antiquity;
and nothing but his great age prevented his
accepting of an invitation so suited to his taste.

He wrote, besides the above works, 1. A Treatise on the Scurvy. 2. De Variolis et Morbillis Dissertation. 3. Medica Sacra: sive de Morbis Insignioribus, qui in Bibliis Memorantur, Commentarius. 4. Monita et Præcepta Medica. 5. A Discourse concerning Pestilential Contagion, and the Methods to be used to prevent it. His Latin works were translated into English by Dr. Thomas Stack. He died February 16th, 1754.

MEADOW is pasture or grass land, annually mown for hay, but more particularly applied to low lands too moist for cattle grazing on in winter, without spoiling the sward. The best lands for meadow are those of a rich soil, situated on a gentle declivity, in the vicinity of running water. To form the best meadow, six kinds of grass and two of clover should be sown. The seeds should be mixed together in the following proportions, viz. of meadow fescue grass (*festuca pratensis*) four parts: of meadow fox-tail grass (*alopecurus pratensis*) four: smooth stalked meadow grass (*poa pratensis*) two: roughish meadow grass (*poa trivialis*) two: crested dog's-tail grass (*cyenosurus cristatus*) one: sweet scented spring grass (*anthoxanthum odoratum*) one: white or Dutch clover (*trifolium repens*) two: common or red clover (*trifolium pratense*) two. Of these seeds sow three bushels on an acre in rows for the convenience of hoeing. Towards the end of August, or early in September, it will be necessary to weed and thin the grasses occasionally, and also to roll them in the spring. If the soil be previously cleared from all noxious weeds and plants, these grasses will in two years form an excellent meadow. But, in case it be required to seed a piece of land immediately, and the valuable grasses cannot be procured, the following seeds are recommended: broad clover, or cow grass; white clover, trefoil, rye-grass, and, if the soil be sufficiently dry, burnet. On clean tilth, they will, in a few years, present a good meadow; as the clover and rye-grass, in the first or second year, produce ample swathe for mowing: next they will be succeeded by a luxuriant crop of the white clover and trefoil, united with the natural grasses of the soil. Grass seeds ought to be sown during moist weather, either in the summer or in autumn, after turnips, or any other hoeing crop; for it is absolutely necessary to prepare for them a fine clean tilth. On the approach of winter the young crop should be slightly covered with long stable dung, old slat, or even sand, earth, or any other manure. The land ought, likewise, to be occasionally cleared of the weeds, together with their roots, and the vacant spot fresh seeded. In laying lands down for meadows, old turf must be uniformly broken up, by paring and burning, when it is to be sown with new grasses; but such soils as have been completely exhausted by successive crops of corn should first be laid dry, and diligently cleaned; then sown with proper herbage, top-dressed, and manured for the space of two or three years; in consequence of which they will recover their former fertility. Lastly, the operation of rolling meadows in the spring, especially such as have been watered, ought never to be omitted. The most proper time for

this purpose is the beginning or middle of February, after the land has been laid dry for a week. Rolling prepares the grass for being cut close to the surface when mown; which is a circumstance of considerable importance; because the ant-hills, and other little elevations, are thus pressed close to the ground, and many inconveniences will be thereby effectually removed. An improvement in agriculture, by watering of meadows, has of late come much into use. See RURAL ECONOMY. See AGRICULTURE.

MEAGER, *adj.* & *v. n.* } Sax. *mæger*; Belg. MEAGERNESS, *n. s.* } and Teut. *mager*; Goth. *mægar*; Fr. *maigre*; Ital. and Span. *magro* Lean; withered; wanting flesh: to make lean.

Thou art so lean and *meagre* waxen late,
That scarce thy legs uphold thy feeble gate.

Hubberd.

It cannot be, that I should be so shamefully betrayed, and as a man *meagred* with long watching and painful labour, laid himself down to sleep.

Knolles's History of the Turks.

Meagre were his looks,
Sharp misery had worn him to the bones.

Shakspere.

Poynings, the better to make compensation of the *meagerness* of his service in the wars by acts of peace, called a parliament.

Bacon.

Fierce famine with her *meagre* face,
And fevers of the fiery race,
In swarms the offending wretch surround,
All brooding on the blasted ground:
And hump; death, lashed on by fate,
Comes up to shorten half our date. *Druden.*
Whatsoever their neighbour gets, they lose, and
the very bread that one eats, makes t'other *meagre*.

L'Estrange.

Heaven stands absolved by vengeance on the
pen,

And marks the murderers of fame from men:
Through *meagre* jaws they draw their venal breath,
As ghastly as their brothers in Macbeth. *Young.*

MEAK, *n. s.* Ital. *hæk*. A hook for cutting peas.

A *meake* for the pease, and to swing up the basket.

Tasso.

MEAL, *n. s.* Sax. *male*; Gothic, Swed. and Teut. *mal*; Belg. *meal*. A regular repast; the food eaten; a part or fragment (*meal* is also a devourer).

Boaz said unto her, at *meal*-time, Come, eat, and dip thy morsel.

Ruth ii. 14.

Give them great *meals* of beef, and iron and steel;
they will eat like wolves, and fight like devils.

Shakspere. Henry V.

Let both worlds disjoint, and all things suffer,
Ere we will cut our *meal* in tears.

Id. Macbeth.

That yearly rent is still paid into the hanaper, even as the former casualty itself was wont to be, in parcel *meal*, brought in and answered there. *Bacon.*

A man that comes hungry to his *meal* feeds heartily on the meat set before him, not regarding the metal, or form of the platter, wherein it is served.

Bp. Hall.

They made m' a miser's feast of happiness,
And could not furnish out another *meal*.

Dryden.

The quantity of aliment necessary to keep the animal in a due state of vigour, ought to be divided into *meals* at proper intervals. *Arbuthnot on Aliments.*

Then grudge not her temperate *meals*,
Nor a benefit blame as a theft;

Since, stole she not all that she steals,
Neither honey nor wax would be left. *Cowper.*

MEAL, *n. s. & v. a.* } Sax. *mela*, *melape*;
MEAL'MAN, *n. s.* } Teut. *mehl*; Dan & Belg.
MEALY, *adj.* } *mcel*; Arm. and Goth.
MEALY-MOUTHED. } *mal*, from Goth. *mala*,
grind into small pieces. The flour of corn
first ground; Fr. *mcler*, to mingle. Mealman,
a dealer in meal. Mealy, having the taste,
qualities, or sprinkled appearance of meal.
Mealy-mouthed is tender mouthed, as horses
when they are fed with bruised corn or meal.

Were he *mealed*
With that which he corrects, then were he tyrannous.
Shakspeare.

In the bolting and shifting of near fourteen years
of such power and favour, all that came out could
not be expected to be pure and fine *meal*, but must
have a mixture of padar and bran in this lower age
of human fragility. *Wotton.*

With four wings, as all farinaceous and *mealy*-
tinged animals, as butterflies and moths. *Browne.*

An old weasel conveys himself into a *meal* tub for
he nice to come to her, since she could not go to
him. *L'Estrange.*

She was a fool to be *mealy-mouthed* where nature
peaks so plain. *Id.*

The *mealy* parts of plants dissolved in water make
so viscid an aliment. *Arbutnot on Aliments.*

Like a gay insect in his summer shine,
The top light fluttering spreads his *mealy* wings.
Thomson.

MEAL is the flour of grain. The meal or
flour of Britain is the finest and whitest in the
world. The French is usually browner, and the
German browner than that. Our flour keeps
well with us, but in carrying abroad it often con-
tracts dampness, and becomes bad. All flour is
subject to breed worms; these are white in the
white flour, and brown in the brown: they are
therefore not always distinguishable by the eye;
but when the flour feels damp, and smells rank
and musty, it may be conjectured that they
boud in it. The color and the weight are the
two things which denote the value of meal or
flour; the whiter and the heavier it is, ceteris
paribus, the better it always is. Pliny mentions
these two characters as the marks of good flour;
and tells us that Italy, in his time, produced the
best in the world. It was, indeed, famous be-
fore his time for this produce; and the Greeks
celebrated it. Sophocles, in particular, says that
so flour is so white and so good as that of Italy.
The corn of Italy, however, has lost much of its
reputation since that time. The reason seems to
be, that the whole country being full of sulphur,
Jum, vitriol, and bitumens, the air may have in
me affected them so far as to make them diffuse
hemselves through the earth, and render it less
it for vegetation; and the taking fire of some of
these inflammable minerals, as has sometimes
appened, is alone sufficient to alter the nature
of all the land about the places where they are.
The flour of Britain, though it pleases by its
whiteness, yet wants some of the other qualities
valuable in flour; the bread that is made of it is
brittle, and does not hold together, but after
leeping a few days becomes hard and dry as if
made of chalk, and is full of cracks in all parts;
which is a great disadvantage when it is intended

for the service of an army, where there is no
baking every day, but the bread of one baking
must necessarily be kept a long time. The
flour of the late province of Picardy is very
like that of Britain; and, after it has been
kept some time, is found improper for making
into paste or dough. The French must either
use it immediately on the grinding, or mix it
with an equal quantity of the flour of Brit-
tany, which is coarser, but more unctuous and
fatty; but neither of these kinds keeps well.
The flour of almost any country will do for home
consumption, as it may be always fresh ground;
but great care must be used in selecting it to send
it abroad, or furnish ships with it. The saline
humidity of the sea-air rusts metals, and fouls
every thing on board, if great care be not taken
in preserving them. This also makes the flour
damp and mouldy, and is often the occasion of
its breeding insects, and being wholly spoiled.
The flour of some places is found to keep better
at sea than that of others; and the whole caution
needs only be to carry the flour of those places.
Thus the French find that the flour of the ci-
devant provinces of Poitou, Normandy, and Gui-
enne, all bear the sea-carriage extremely well;
and they make a considerable advantage by
carrying them to America. The next care is to
preserve it in the ships; the keeping it dry is
the grand consideration in regard to this; the
barrels in which it is put up ought to be
made of dry and well-seasoned oak, and not to
be larger than to hold 2 cwt. at the most. If
the wood of the barrels have any sap remaining
in it, it will moisten and spoil the flour; and no
wood is so proper as oak for making the bins
and other vessels for keeping flour, since, when
once well dried and seasoned, it will not contract
humidity afterwards. The beech wood, of which
some make their bins for flour, is never thor-
oughly dry, but always retains some sap. The
fir gives the flour a taste of turpentine; and
the ash is always subject to be eaten by worms.
The oak is preferable, being free from all these
faults.

MEAN, *adj.* } Sax. *maene*; Teut. *mein*;
MEAN'LY, *adv.* } Goth. *maug*, many (i. e. the
MEAN'NESS, *n. s.* } many or crowd). Low in
rank or birth; vulgar; base; spiritless; low in
any good quality; contemptible. Meanly is,
without dignity or excellence; poorly. Meanness,
lowness; sordidness; want of excellence or
dignity.

She was stricken with most obstinate love to a
young man but of *mean* parentage, in her father's
court, named Antiphrus; so *mean*, as that he was
but the son of her nurse, and by that means, without
other desert, became known of her. *Sidney.*

Some things are good, yet in so *mean* a degree of
goodness, that many are only not disapproved nor
disallowed of God for them. *Hooker.*

The minister's greatness or *meanness* of knowledge
to do other things, standeth in this place as a stran-
ger, with whom our form of Common Prayer hath
nothing to do. *Id.*

Let pale-faced fear keep with the *mean*-born man,
And find no harbour in a royal heart. *Shakspeare.*

True hope is swift, and flies with swallow-wings;
Kings it makes gods, and *meaner* creatures kings. *Id.*

The lands be not holden of her majesty, but by a *mean* tenure in soccage, or by knight's service at the most. *Bacon.*

By this extortion, he suddenly grew from a *mean* to a mighty estate, insomuch that his ancient inheritance being not one thousand marks yearly, he became able to dispend ten thousand pounds. *Darvies on Ireland.*

French wheat is bearded, and requireth the best soil, recompensing the same with a profitable plenty; and not-wheat, so termed because it is unbearded, is contented with a *meaner* earth, and contenting with a suitable gain. *Carrw.*

The Persian state will not endure a king
So *meanly* born. *Denham's Sophy.*

It was the winter wild,
While the heaven-born child,
All *meanly* wrapt in the rude-manger lies. *Milton.*

No other nymphs have title to men's hearts,
But as their *meanness* larger hopes imparts. *Waller.*

Can you imagine I so *mean* could prove,
To save my life by changing of my love? *Dryden.*

The Roman legions and great Caesar found
Our fathers no *mean* foes. *Philips.*

The name of servants has been reckoned to imply a certain *meanness* of mind, as well as lowness of condition. *South.*

This figure is of a later date by the *meanness* of the workmanship. *Addison on Italy.*

Would you *meanly* thus rely
On power, you know, I must obey? *Prior.*

We fast, not to please men, nor to promote any *mean*, worldly interest. *Smalbridge's Sermons.*

I have sacrificed much of my own self-love, in preventing not only many *mean* things from seeing the light, but many which I thought tolerable. *Pope.*

Our kindred, and our very names, seem to have something desirable in them: we cannot bear to have others think *meanly* of them. *Watts's Logic.*

MEAN, *n. s. & adj.* Fr. *moyen, mesne*; Gr. *μεσος*; Lat. *medium*. A
MEAN'LY, *adv.* } measure or instrument
MEAN'TIME, *adv.* } used to produce an end;
MEANWHILE. }

method; interval; revenue: as an adjective, middle; moderate; intervening in space or time. The substantive, as Dr. Johnson says, is often used in the plural, 'and by some, not very grammatically, with an adjective singular' *meanly*, in this sense, is moderately; in a middling manner. 'By all means' is a phrase signifying, without doubt or hesitation; 'by no means' is its direct opposite: meantime and meanwhile, both mean in the intervening time.

And *they* wenten out of the cytte and camen to him, in the *meane while* hise disciples preieden him, and seiden, Mastir, etc. *Wiclif. Jon. iv.*

In the *mean while* the heaven was black with clouds and wind, and there was a great rain. *1 Kings xviii. 45.*

Dr. Metcalfe, master of St. John's College, a man *meanly* learned himself, but not *meanly* affectioned to set forward learning in others. *Ascham.*

He saw this gentleman, one of the properest and best-graced men that ever I saw, being of middle age and a *mean* stature. *Sidney.*

Pamela's noble heart would needs gratefully make known the valiant *mean* of her safety. *Id.*

He tempering goodly well
Their contrary dislikes with loved *means*,
Did place them all in order, and compell

To keep themselves within their sundry reigns,
Together linked with adamantine chains. *Spenser.*

But sith this wretched woman overcome,
Of anguish rather than of crime hath been,
Reserve her cause to the eternal doom,
And in the *mean* vouchsafe her honourable tomb. *Id.*

As long as that which Christians did was good and no way subject to just reproof, their virtuous conversation was a *mean* to work the heathens' conversion unto Christ. *Hooker.*

Oft 'tis seen
Our *mean* securities, and our mere defects
Prove our commodities. *Shakespeare. King Lear.*

Temperance with golden square,
Betwixt them both can measure out a *mean*. *Shakespeare.*

I'll devise a *mean* to draw the Moor
Out of the way, that your converse and business
May be more free. *Id. Othello.*

The more base art thou,
To make such *means* for her as thou hast done,
And leave her on such slight conditions. *Shakespeare.*

Your *means* are slender, your waste is great. *Id.*

By this *means* he had them the more at vantage, being tired and harassed with a long march. *Bacon's Henry III.*

Because he wanted *means* to perform any great action, he made *means* to return the sooner. *Darvies on Ireland.*

It is our shame and sin, if in these *means* of civility we be no better acquainted with God, than they which in their greatest familiarity were commanded aloof. *Bp. Hall's Contemplations.*

Strong was their plot,
Their parties great, *means* good, the season fit,
Their practice close, their faith suspected not. *Daniel.*

Against her then her forces prudence joins,
And to the golden *mean* herself confines. *Denham.*

Now read with them those organick arts which enable men to discourse and write, and according to the fittest style of lofty, *mean*, or lowly. *Milton on Education.*

Mean-while
The world shall burn, and from her ashes spring
New heaven and earth. *Id. Paradise Lost.*

But no authority of gods or men
Allow of any *mean* in poesie. *Roscommon.*

There is a *mean* in all things, and a certain measure wherein the good and the beautiful consist, and out of which they never can depart. *Dryden.*

Mean-time the rapid heavens rolled down the light,
And on the shaded ocean rushed the night. *Id.*

In the reign of Domitian, poetry was but *meanly* cultivated, but painting eminently flourished. *Id. Diderot.*

Who is there that hath the leisure and *means* to collect all the proofs concerning most of the opinions he has, so as safely to conclude that he hath a clear and full view? *Locke.*

By this *means* not only many helpless persons will be provided for, but a generation will be bred up not perverted by any other hopes. *Sprat's Sermons.*

The wine on this side of the lake is by no *means* so good as that on the other. *Addison on Italy.*
Mean-while I'll draw up my Numidian troops,
And, as I see occasion, favour thee. *Id. Cato.*

Essex did not build or adorn any house ; the queen perchance spending his time, and himself his *means*.
Volton.

A good character, when established, should not be rested in as an end, but only employed as a *means* of doing still farther good.
Atterbury.

It renders us careless of approving ourselves to God by religious duties, and by that *means* securing the continuance of his goodness.
Id.

The Roman legions were all recalled to help their country against the Goths ; *mean-time* the Britons, left to shift for themselves, and harassed by inroads from the Picts, were forced to call in the Saxons for their defence.
Swift.

MEAN, *v. a. & v. n.* } Sax. *mænan* ; Belg.
MEANING, *n. s.* } *meenun* ; Tent. *meinin* ;
MEANT, *part.* } Dan. *meene*. To purpose ; intend ; design ; have in mind ; think : meaning is, intention ; purpose ; sense ; the thing to be understood ; the power of thinking : meant is the perf. and past. part. of the verb.

Ye thought evil against me ; but God *meant* it into good, to save much people alive.
Genesis i. 20.

When your children shall say, What *mean* you by his service ! ye shall say, It is the passover.
Exodus xii. 26.

I am no honest man, if there be any good *mean- ing* towards you.
Shakspeare. King Lear.

The Scripture may have more senses besides the literal ; because God understands all things at once ; but a man's writing has but one true sense, which is that which the author *meant* when he wrote it.
Selden.

These delights if thou canst give,
Mirth, with thee I *mean* to live. *Milton.*
And life more perfect have attained than fate
Meant me, by venturing higher than my lot. *Id.*
The *meaning*, not the name, I call : for thou,
Not of the Muses nine. *Id. Paradise Lost.*

If we do presume to offer this service, we should do it in the manner appointed by himself—taking care that our *meaning* be conformable to the sense of our words, and our words to the verity of things.
Barrow.

Some whose *meaning* hath at first been fair,
Grow knaves by use, and rebels by despair.
Roscommon.

I practised it to make you taste your cheer
With double pleasure, first prepared by fear :
So loyal subjects often seize their prince,
Yet *mean* his sacred person not the least offence.
Dryden.

He was not spiteful though he wrote a satire,
For still there goes some *meaning* to ill nature.
Id.

Whatever was *meant* by them, it could not be that
ain, as elder, had a natural dominion over Abel.
Locke.

And he who now to sense, now nonsense leaning,
Leans not, but blunders round about a *meaning*.
Pope.

No word more frequently in the mouths of men
nan conscience ; and the *meaning* of it is, in some
measure, understood : however, it is a word ex-
tremely abused by many, who apply other *mean- ings* to it which God Almighty never intended.
Swift.

MEANDER, *n. s. & v. n.* } From the river
MEANDROUS. } Meander, in Phry-
ia, which had a very winding course. Maze ; la-
yrinth ; circuitous course : to wind circuitously :
meandering, winding ; flexuous.

Physicians, by the help of anatomical dissections, have searched into those various *meanders* of the veins, arteries, and integrals of the body. *Hale.*

'Tis well, that while mankind
Through fate's perverse *meander* errs,
He can imagined pleasures find,
To combat against real cares. *Prior.*

While lingering rivers in *meanders* glide
They scatter verdant life on either side ;
The valleys smile, and with their flowery face,
And wealthy births, confess the floods embrace.
Blackmore.

Law is a bottomless pit : John Bull was flattered by the lawyers, that his suit would not last above a year ; yet ten long years did Hocus steer his cause through all the *meanders* of the law, and all the courts.
Arbutnot.

While praising, and raising
His thoughts to heaven on high,
As wandering, *meandering*,
He views the solemn sky. *Burns.*

MEARNS, or KINCARDINESHIRE, a county of Scotland, is bounded on the east by the German or British Ocean for about thirty-five miles, including the various indentations of a high and precipitous rocky shore ; on the north by the river Dee and part of Aberdeenshire ; and on the west and south by the county of Angus, from which it is separated, in almost the whole line, by the river North Esk. It is of a triangular form, and extends thirty-two miles in length from south-west to north-east, and twenty-four miles where broadest from south to north, comprehending an area of 380 square miles, or 243,444 acres. Dividing the whole into 100 parts, there are about thirty in full cultivation, twelve partially cultivated, eight in plantations, and one-half of such high hills or barren heaths as altogether to preclude cultivation, and even unproductive in pasture. The general aspect of this county is diversified ; but it has been divided into the five following districts, i. e. 1. The Dee-side district, on the north side of the Grampians, through which flows the river of that name. 2. The district on the coast, north of the water of Cowie, which flows into the German Ocean near Stonehaven. 3. The coast district south of this water. 4. The valley or flow of the Mearns, to the south of the Grampians ; and 5. That part of the county which is occupied by the Grampians.

1. That part of the Dee district which lies north of the river Dee is between thirteen and twenty-two miles west from Aberdeen, and consists altogether of about twenty-six square miles, or 16,640 acres. It has been greatly improved by the exertions of the proprietors and tenants, though there is still not more than one-eighth part of it in cultivation. There is more land in this quarter planted with wood, in proportion to its extent, than in any other district of the county. The southern portion is partly in a state of complete cultivation, and partly in a progress towards it. It extends east and west eighteen miles, and comprehends about fifty-four square miles, or 34,560 acres, of which not more than one-fifth is in actual cultivation.

2. The coast-district north of Stonehaven extends about fourteen miles along the coast, between that place and the Dee, and is about three miles and a quarter at an average breadth,

between the sea and the Grampians, where cultivation has not reached, and thus will comprehend forty-five square miles, or 28,800 acres. Near the town of Stonehaven part of the lands is in a high state of cultivation. There are also small strips of fertile ground by the sea in the vicinity of Aberdeen; but the great proportion of this tract is the most wretched country that can be conceived.

3. The district south from Stonehaven extends about eighteen or twenty miles along the shore of the ocean. A bold rocky shore, from 100 to 300 feet in height, expands in general into plain fields, many of which are in high cultivation. Some of the hills (and generally the most barren) approach close to the sea; but the greater part are in the back ground. The soil in the lower parts is of every description, from the most worthless to the most valuable, oddly intermixed, the greater proportion being as productive perhaps as any in Britain, and bearing luxuriant crops of beans, wheat, clover, &c. This tract, stretching inland from four to five miles, may comprehend about eighty-five square miles, or 54,400 acres, of which one half is in cultivation.

4. The How of the Mearns lies to the west of the district last described, and immediately south from the Grampians. It is a low well-cultivated country, abounding in seats, villages, and plantations. It is about sixteen miles long from east to west, and five miles broad at the west end, but grows narrower towards the east, until at its termination at the Water-shed, about four miles west from Stonehaven, it is little more than half a mile across. It comprehends altogether about fifty square miles, or 32,000 acres, of which five parts in six are in cultivation, and it is sheltered from the cold northern blasts by the Grampians, which here present a front of from 500 to 2500 feet in height. The soil in this district, throughout the greater part, is pretty uniform. On the northern side, fronting the south, it may be defined as a gravelly loam, and on the opposite side, fronting the north, a loam derived from clay. Throughout the whole it is commonly productive.

5. The Grampian district stretches through the whole breadth of the county from east to west. Commencing where cultivation ceases, this bleak and hilly country, at about three miles from the coast, increases rapidly in altitude, but on a pretty regular scale of gradation, until, at the western extremity, about twenty miles from the sea, Mount Battock, nearly 3500 feet high, rises above them all. The tract thus occupied is, at an average, from sixteen to eighteen miles in length from east to west, and about from six to eight miles across from south to north, comprehending altogether an area of upwards of 120 square miles, or nearly 80,000 acres.

The climate in winter and spring is here excessively severe, and the country, except in a very few places, is devoid of human habitation. In summer the glens or valleys are, however, uncommonly warm, and are somewhat enlivened by the fringe of pasture on the sides of the different brooks. But these valleys form but a small proportion of this district.

Over the whole district granite is the most prevalent stone; and southward along the coast sandstone, puddingstone, limestone, and rotten rock. Limestone is found in several parts of the county, but not in great quantities. Plum puddingstone composes a principal portion of the rocks. In some places, consisting of a small gravel, it is manufactured into millstones. The noted rocks of Fowls'-heugh, about three miles south from Stonehaven, form a range along the coast, about a mile in length, and 200 feet in height. Jasper, porphyry, and specimens of asbestos, are also observed here. Pebbles acquired in every brook; and the Scots topaz or cairngorum, is found among the Grampians of Kincardine. The animals are the roe-deer, fox, hare, badger, otter, wild-cat, weasel, pole-cat and hedgehog. Of the birds, grouse are plentiful, and partridges and sea-fowl in the low country.

The principal rivers are the Dee, which has a course of seventy-five miles, eight of which are within Kincardineshire; the North Esk, the boundary between the counties of Kincardine and Forfar; Bervie water, which falls into the German Ocean near the town of Bervie; and the Cowie, which falls into the sea at Stonehaven. There are also the Carron, Feuch, Avon, and Dye, besides other inferior streams. There are also two lakes, which are about three miles in circumference. The chief antiquities are Finella's Castle, remarkable for its vitrified walls, about a mile and a half from Fettercarn; Queen's Castle, about a mile eastward from that town; the Kame of Mathers, about six miles from Montrose; Whistlebury Castle, about two miles from Bervie; and Dunnotar Castle, about a mile south from Stonehaven; all placed on the summits of lofty insulated rocks on the shore. The valued rent of the county is £74,921. Kincardineshire contains one royal burgh, namely, Inverbervie, or more commonly Bervie. But there are the towns and villages of Stonehaven, Johnshaven, and Laurencekirk. The county is divided into nineteen parochial districts.

MEASLES, *n. s.* } Belg. *maelen, meuschen*;
MEASLED, *adj.* } Teut. *maselen, mase*, or
MEASLY, *adj.* } *masche*; of Lat. *macula*, spots. An eruptive disease of man and some of the lower animals: Mortimer also finds it in trees: measles and measly are, infected, or scabbed, with measles.

My lungs
Coin words till their decay, against those *measles*,
Which we disdain should tetter us, yet seek
The very way to catch them.

Shakspeare. Coriolanus.

One, when he had an unlucky old grange, would needs sell it, and proclaimed the virtues of it; nothing ever thrived on it, no owner of it ever died in his bed; the swine died of the *measles*, and the sheep of the rot.
Ben Jonson's Discovery

Thou vermin wretched,
As e'er in *measled* pork was hatched;
Thou tail of worship, that dost grow
On rump of justice as of cow.
Hudibras.

Fruit-bearers are often infected with the *measles*, by being scorched with the sun.

Mortimer's Husbandry.

Before the plague of London, inflammations of the lungs were rife and mortal, as likewise the *measles*.
Arbuthnot.

Last trotted forth the gentle swine,
To ease her against the stump,
And dismally was heard to whine,
All as she scrubbed her *measly* rump. *Swift.*

MEASURE, *n. s. & v. a.* } Fren. *mesure* ;
MEASURELESS, *adj.* } Ital. *misura* ; Lat.
MEASUREMENT, *n. s.* } *mensura* ; Hebrew
MEASURER, } מְשׁוּרָה. Rule of
MEASURING, *adj.* } dimension, proportion, or quantity ; hence sufficient quantity ; due degree or proportion ; limit ; boundary ; allotment ; musical time ; metre ; tune ; a stately dance ; mean of action, referring, as Johnson observes, to the necessity of measuring the ground upon which any structure is to be raised, or any distant effect to be produced, as in shooting at a mark. Hence, he that proportioned his means to his end was said to take right measures : to measure is to compute by rule, or by passing over : hence to adjust ; judge ; mark out ; allot : measuring, as an adjective, is applied by Waller to a cast not to be distinguished in its length from another but by measuring.

For not to *measure*, God giveth the spirit.

Wiclif. Jam. iii.

Lord, make me to know mine end, and the *measure* of my days what it is, that I may know how frail I am. *Psalms.*

With what *measure* you mete, it shall be *measured* to you again. *Matth. vii. 2.*

Wine *measurably* drunk, and in season, bringeth gladness of the heart. *Eccles. xxxi. 23.*

The joyous nymphs and light-foot fairies,

Which thither came to hear their music sweet,

And to the *measures* of their melodies

Did learn to move their nimble-shifting feet.

Spenser.

Measure is that which perfecteth all things, because every thing is for some end ; neither can that thing be available to any end, which is not proportionable thereunto ; and to proportion as well excesses as defects are opposite. *Hooker.*

Now are our brows bound with victorious wreaths,
Our stern alarms changed to merry meetings,
Our dreadful marches to delightful *measures*.

Shakespeare.

He shut up in *measureless* content. *Id.*

Woe! wedding, and repenting, is as a Scotch jig, a reel, and a cinque pace ; the first so hot an ha, like a Scotch reel, and full ; the second, the wedding mannerly, modest as a *measure*, full of state and anchentry. *Id.*

My legs can keep no *measure* in delight,

When my poor heart no *measure* keeps in grief ;

Therefoe no dancing, girl, some other sport. *Id.*

A true devoted pilgrim is not weary

To *measure* kingdoms with his feeble steps. *Id.*

A taylor's news,

Who stood with shears and *measure* in his hand,
Standing on slippers, which his nimble haste
Had falsely thrust upon contrary feet,

Told of many a thousand. *Id. King John.*

Be large in mirth, anon we'll drink a *measure*
The table round. *Id. Macbeth.*

Good Kent, how shall I live and work
To match thy goodness ? life will be too short,
And every *measure* fail me. *Id. King Lear.*

Archidamus having received from Philip, after the victory of Chereonea, proud letters, writ back, that if

he *measured* his own shadow he would find it no longer than it was before his victory. *Bacon.*

I have laid down, in some *measure*, the description of the old world. *Abbot's Description of the World.*

Had not this messenger *measured* David's foot by his own last, he had forborne this piece of news ; and not hoped to advantage himself by this falsehood. *Bp. Hall.*

Words must be fitted to a man's mouth : 'twas well said of the fellow that was to make a speech for my lord mayor, when he desired to take *measure* of his lordship's mouth. *Selden.*

To secure a contented spirit, *measure* your desires by your fortunes, not your fortunes by your desires. *Taylor.*

He lived according to nature, the other by ill customs, and *measures* taken by other men's eyes and tongues. *Id.*

His majesty found what wrong *measures* he had taken in the conferring that trust, and lamented his error. *Clarendon.*

Great are thy works, Jehovah ! infinite
Thy power ! What thought can *measure* thee, or
tongue

Relate thee ? *Milton's Paradise Lost.*

When lusty shepherds throw

The bar by turns, and none the rest out-go

So far, but that the best are *measuring* casts,

Their emulation and their pastime lasts.

Waller.

God's goodness is the *measure* of his providence.

Morr.

Our religion sets before us not the example of a stupid stoick, who had, by obstinate principles, hardened himself against all pain beyond the common *measures* of humanity, but an example of a man like ourselves. *Tillotson.*

A concave *measure*, of known and denominated capacity, serves to *measure* the capaciousness of any other vessel. *Holder.*

All magnitudes are capable of being *measured*, but it is the application of one to another which makes actual *measure*. *Id.*

I addressed them to a lady, and affected the soft-
nd the of a
rather than the height of thought. *Dryden.*

The vessel ploughs the sea,

And *measures* back with speed her former way.

Id.

As when the stars, in their athermal race,
At length have rolled around the liquid space,
From the same point of heaven their course advance,
And move in *measures* of their former dance. *Id.*

Silver is the instrument as well as *measure* of commerce ; and 'tis by the quantity of silver he gets for any commodity in exchange, that he *measures* the value of the commodity he sells. *Locke.*

What thou seest is that portion of eternity which is called time, *measured* out by the sun, and teaching from the beginning of the world to its consummation. *Addison's Spectator.*

Christ reveals to us the *measures* according to which God will proceed in dispensing his rewards. *Snodridge's Sermons.*

Amaryllis breathes thy secret pains,

And thy fond heart beats *measure* to thy strains.

Prior.

When Moses speaks of *measures*, for example, of an ephah, he presumes they knew what *measure* he meant : that he himself was skilled in weights and *measures*, arithmetick and geometry, there is no reason to doubt. *Arbuthnot on Coins.*

I expect, from those that judge by first sight and rash *measures*, to be thought fond or insolent.

Granville's Scipius.

God's eternal duration is permanent and invisible, not *measurable* by time and motion, nor to be computed by number of successive moments.

Bentley's Sermons.

The numbers themselves, though of the heroic *measure*, should be the smoothest imaginable.

Pope.

Can that arm *measure*, with an arm divine?
And canst thou thunder with a voice like mine?

Young.

A series of inconsistent *measures* has alienated the colonies from their duty as subjects, and from their natural affections to their common country.

Junius.

In some *measure* I succeeded; I had pride before, but he taught it to flow in proper channels.

Burns.

They think there is nothing worth pursuit, but that which they can handle; which they can *measure* with a two-foot rule, which they can tell upon ten fingers.

Sheridan.

MEASURE, among botanists. In describing the parts of plants, Tournefort introduced a geometrical scale, which many of his followers have retained. They measured every part of the plant; and the essence of the description consisted in an accurate mensuration of the whole. As the parts of plants, however, are liable to variation in no circumstance so much as that of dimension, Linnæus very rarely admits any other mensuration than that arising from the respective length and breadth of the parts compared together. In cases that require actual mensuration, the same author recommends, in lieu of Tournefort's artificial scale, the following natural scale of the human body, which he thinks is much more convenient, and equally accurate. This scale consists of eleven degrees, which are as follows:—1. A hair's-breadth, or the diameter of a hair (capillus). 2. A line (linca), the breadth of the crescent or white appearance at the root of the finger (not thumb), measured from the skin towards the body of the nail; a line is equal to twelve hair-breadths, and is the twelfth part of a Parisian inch. 3. A nail (unguis), the length of a finger nail; equal to six lines, or half a Parisian inch. 4. A thumb (pollex), the length of the first or uttermost joint of the thumb; equal to a Parisian inch. 5. A palm (palms), the breadth of the palm exclusive of the thumb; equal to three Parisian inches. 6. A span (spithama), the distance between the extremity of the thumb and that of the first finger when extended; equal to seven Parisian inches. 7. A great span (dodrans), the distance between the extremity of the thumb and that of the little finger when extended; equal to nine inches. 8. A foot (pes), measuring from the elbow to the basis of the thumb; equal to twelve Parisian inches. 9. A cubit (cubitus), from the elbow to the extremity of the middle finger; equal to seventeen inches. 10. An arm-length (brachium), from the arm-pit to the extremity of the middle finger; equal to twenty-four Parisian inches, or two feet. 11. A fathom (oraya), the measure of the human stature; the distance between the extremities of the two middle fingers, when the arms are extended; equal, where greatest, to six feet.

MEASURE, in geometry, denotes any quantity assumed, as one, or unity, to which the ratio of

the other homogeneous or similar quantities is expressed.

MEASURE, in music, the interval or space of time which the person who beats time takes between the rising and falling of his hand or foot in order to conduct the movement, sometime quicker and sometimes slower, according to the kind of music, or the subject that is sung or played. The measure is that which regulate the time we are to dwell on each note. See **TIME**. The ordinary or common measure is on second, or sixtieth part of a minute, which is nearly the space between the beats of the pulse or heart; the systole, or constriction of the heart, answering to the elevation of the hand and its diastole, or dilatation, to the letting it fall. The measure usually takes up the space that a pendulum of two feet and a half long employs in making a swing or vibration. The measure is regulated according to the different quantity or value of the notes in the piece; by which the time that each note is to take up is expressed. The semibreve, for instance, holds one rise, and one fall; and this is called the measure, or whole measure; sometimes the measure note, or time note; the minim, one rise or one fall; and the crotchet, half a rise or half a fall, there being four crotchets in a full measure.

MEASURE BINARY, or **DOUBLE**, is that wherein the rise and fall of the hand are equal.

MEASURE TERNARY, or **TRIPLE**, is that wherein the fall is double to the rise; or where two minims are played during a fall, and but one in the rise. To this purpose, the number three is placed at the beginning of the lines, when the measure is intended to be triple; and a C, when the measure is to be common or double. This rising and falling of the hands was called by the Greeks *apaic* and *επις*. St. Augustine calls it *plausus*, and the Spaniards *compas*.

MEASURE is also used to signify the cadence and time observed in poetry, dancing, and music, to render them regular and agreeable. The different measures or metres in poetry are the different manners of ordering and combining the quantities, or the long and short syllables. Thus hexameter, pentameter, iambic, sapphic verses, &c., consist of different measures. In English verses the measures are extremely various and arbitrary, every poet being at liberty to introduce any new form that he pleases. The most usual are the heroic, generally consisting of five long and five short syllables; and verses of four feet; and of three feet and a caesura, or single syllable. The ancients, by variously combining and transposing their quantities, made a vast variety of different measures. Of words, or rather feet of two syllables, they formed a spondee, consisting of two long syllables; a pyrrhic, of two short syllables; a trochee, of a long and a short syllable; and an iambic, of a short and a long syllable. Of their feet of three syllables they formed a molossus, consisting of three long syllables; a tribrachys, of three short syllables; a dactyl, of one long and two short syllables; and an anapæst, of two short and one long syllable. The Greek poets contrived 120 different

combinations or measures, under as many different names, from feet of two syllables to those of six.

MEASURE, in a legal and commercial sense, denotes a certain quantity or proportion of any thing bought, sold, valued, or the like. It is necessary, for the convenience of commerce, that a uniformity should be observed in weights and measures, and regulated by proper standards. A foot-rule may be used as a standard for measures of length, a bushel for measures of capacity, and a pound for weights. There are several standards of this kind in England and Scotland. See **WEIGHTS AND MEASURES**, where the history of the late important alterations in the British standards will be found; and an ample table of ancient and modern weights and measures.

MEASURING, in general, makes the practical part of geometry. From the various subjects whereon it is employed, it acquires various names, and constitutes various arts. See **GEOMETRY**, and **TRIGONOMETRY**.

MEAT, *n. s.* } Sax. *mete*; Goth. and Swed.

MEAT'ED. } *mate, mat*; Dan. *mad*; Welsh, *marth*. Food; animal food in particular: meat is, fed; foddered.

But he seide to hem, I have *mete* to ete that ye knowen not. *Wiclif. Jon. iv.*

To his father he sent ten she asses laden with corn and bread, and *meat* for his father by the way.

Gen. xlv. 23.

Meats for the belly, and the belly for *meats*: but God shall destroy both. *1 Cor. vi. 13.*

Strong oxen and horses, wel shod and wel clad, Wel *meated* and used. *Tusser's Husbandry.*

Never words were musick to thine ear,

And never *meat* sweet-savoured in thy taste,

Unless I spake or carved.

Shakespeare. Comedy of Errors.

Carnivora, and birds of prey, are no good *meat*; but the reason is, rather the cholerick nature of those birds than their feeding upon flesh; for pewets and ducks feed upon flesh, and yet are good *meat*.

Bacon's Natural History.

He gives the reason of the distaste of satiety, and of the pleasure in novelty in *meats* and drinks. *Id.*

There was a multitude of excises; as, the vertigal maccelli, a ta upon *meat*. *Arbuthnot.*

MEAT. See **ALIMENT**, **DIET**, **DRINK**, and **FOOD**. Among the Jews several kinds of animals were forbidden to be used as food. The flesh with the blood, and the blood without the flesh, were prohibited; as well as the fat of sacrificed animals. Roast *meat*, boiled meat, and ragouts, were used among the Hebrews, but they had no seasoning, except salt, bitter herbs, and honey.—They never mingled milk in any ragout or hash, and never eat at the same meal both meat and milk, butter, or cheese. The daily provision for Solomon's table was thirty measures of fine wheat flour, sixty of common flour, ten stalled oxen, twenty pasture oxen, 100 sheep, besides venison and wild-fowl. The principal and most necessary food among the ancient Greeks was bread, which they called *αρος*, and produced in a wicker basket called *καρον*. Their loaves were sometimes baked under the ashes, and sometimes in an oven. They also used a sort of bread called *maza*. Barley meal was used

among the Greeks, which they called *αλφρον*. They had a frequent dish called *θριον*, which was a composition of rice, cheese, eggs, and honey, wrapped in fig-leaves. The *μυττων* was made of cheese, garlic, and eggs, beaten and mixed together. Their bread, and substitutes for it, were baked in the form of hollow plates, into which they poured a sauce. Garlic, onions, and figs, seem to have been a very common food amongst the poorer Athenians. The Greeks, especially in the heroic times, ate flesh roasted; boiled meat was seldom used. Besides beef, mutton, venison, &c., it appears from Hippocrates that they ate the flesh of horses, asses, dogs, and foxes. Fish seem not to have been used for food in the early ages of Greece. The young people only, among the Lacedemonians, ate animal food; the men and the old men were supported by a black soup called *μελα ζυμος*, which to people of other nations was always disagreeable. Grasshoppers, and the extremities of tender shoots of trees, were frequently eaten by the poor among the Greeks. Eels dressed with beet root were esteemed a delicate dish, and they were fond of the jowl and belly of salt fish. The dessert consisted frequently of fruits, almonds, nuts, figs, peaches, &c. In every kind of food salt was used. The diet of the earliest Romans consisted of milk, herbs, and roots, which they dressed with their own hands; they also had a kind of gruel, or coarse gross pap, composed of meal and boiling water; this served for bread: and, when they began to use bread, they had none for a long time, but of unmixed rye. Barley-meal was next eaten by them, which they called *polenta*. When they began to eat animal food it was esteemed a piece of luxury, and an indulgence not to be justified but by some particular occasion. After animal food had grown into common use, the meat most frequent upon their tables was pork.

MEATH, a county of the province of Leinster, in the kingdom of Ireland. It is bounded on the north by the counties of Cavan and Louth, on the east by the Irish Channel, on the south by Kildare and Dublin, and on the west by Westmeath county. There are eighteen baronies, and 147 parishes in this shire, the area of which measures 327,000 acres.

The surface of Meath, as the name imports, (Maith signifying a level country,) is almost a continued plane; the soil is a deep loam, remarkably fruitful in the production of corn, and also yielding the richest pasturage for the fattening of heavy stock. Meath was anciently a favored province; the great hall of Tara, where the Irish kings of old assembled, where laws were digested, and whence they were published, and with the extinction of whose honors the majesty of the Irish throne may be said to have expired, occupied a central and commanding position here. Few counties possess greater agricultural capabilities, and none in Ireland has turned those natural advantages to a better account. The staple of the county is corn, which is exported from the port of Drogheda. There are many splendid residences of nobility within the boundaries of East Meath, amongst which should be mentioned Slave Castle (honored

by the visit of his gracious majesty, king George IV. in 1821), the magnificent seat of the marquis of Conyngham; Headfort, the seat of marquis Headfort; Douth, the residence of the late lord Netterville; Tarah, the hall of lord Tarah; Gormanston Castle, belonging to the viscount Gormanston, a constant resident; Dangan, the estate and birth-place of the illustrious duke of Wellington; Mornington, formerly the property of the noble family of Wellesley, who hence derived the title of earls; Summerhill, the costly mansion of lord Langford; Dunsany Castle, the ancient possession of the Plunkets, viscount Dunsany; and Stackallen, the picturesque seat of the lord Boyne.

The chief towns of Meath are Trim, the assizes town, Navan, Kells, Athboy, Duleek, Oldcastle, Dunboyne, Laracor (of which parish dean Swift was once the incumbent), Dunsinaghlin, Ratoath, and Slane. The linen manufacture was formerly pursued here with much success, but husbandry appears to have expelled it to a certain extent; and the dowlass, for which this country was once famous, is now made by the great capitalists in the north of England. The rivers of Meath are the Nanny-Water and the Boyne, the latter of which flows through a rich and picturesque vein of country; perhaps the most pleasing landscape on the banks of this noble river is at Aldbridge, the scene of that battle between kings James and William, which decided the fate of the British crown. A beautiful obelisk erected on the spot, with an appropriate inscription, commemorates the great event. Meath has been, for many years, an industrious and tranquil county, not over populous, and comparatively wealthy. Education has not made any very extensive progress here, not more than 7000 pupils being in attendance at the public schools.

MEATHE, *n. s.* Teut. *meth*; Wel. *medd*. Mead; any similar drink.

For drink the grape
She crushes, inoffensive must, and meathes
From many a berry. *Milton's Paradise Lost.*

MEAUX, anciently Latinum, a fine city of the department of the Seine-et-Marne, and the principal place of a subprefecture. It is the seat of a bishop, has a lower court of judicature, a tribunal of commerce, an agricultural society, a society of arts and sciences, and an ecclesiastical school. It is a post town, containing 7400 inhabitants. This city stands on the Marne, near the Oureq Canal, in a very fertile country. The river, which divides it into two unequal parts, serves to work a number of mills, which grind corn chiefly for the supply of Paris. It is a well built town; the market place is large, but of an irregular form, and it has some very agreeable walks. Here is a public library containing 10,000 volumes. In the cathedral, which is regarded as a masterpiece of architecture, the celebrated Bossuet lies interred. At a little distance from the city is the rock of Crécy, remarkable for its grottoes and petrifications, which seems to have been formed by the continual dropping of a spring, that possesses very remarkable qualities.

There are here manufactories of calicoes, printed cottons, glue, saltpetre, and vinegar, tan-

yards, leather dressing shops, &c., and a considerable trade is carried on in corn, flour, mustard, wool, cattle, poultry, wood, coals, and cheese. The markets of Meaux are frequented by a great number of rich farmers. This city is thirty-three miles E. N. E. of Paris, thirty-nine north of Milan, and thirty-six W. S. W. of Chateau Thierry.

MEAZLING, *part.* Teut. *mazelin*, is spotted. See MEASLES. Applied to rain descending in small drops.

The air feels more moist when the water is in small than in great drops; in *mearling* and soaking rain, than in great showers. *Arbutnot on Air.*

MECCA, a noted city of Arabia, the capital of the province of Hedsjas, and of Mahometanism, is situated in a rocky, barren country, about a day's journey from the Red Sea. Its immediate site is a narrow valley, enclosed between mountains; the houses following its windings, and being built partly on the acclivities on each side. The streets are sanded, level, and regular; and the houses of extremely neat appearance, and even handsome. They are of stone, and seldom less than three stories high. In the interior the rooms are large and commodious, though the stairs are generally narrow and dark. The livelihood of the inhabitants depends much on the letting of apartments. The markets are held in the streets. The prosperity derived from the pilgrimages here was at one time so great, that Mecca could boast a population of 100,000 inhabitants. This has been greatly diminished of late, we understand, partly from Mecca being exposed to the incursions of the Wahabees. It is not now supposed to contain more than 16,000 or 18,000 people; and many quarters are abandoned and in ruins. The servants of the temple are described by Ali Bey as the most meagre and miserable people he ever saw. They are also dull and melancholy, nor did he, during his stay, hear a musical instrument or a song, unless in two or three instances from females. From every pilgrim at all opulent, however, they contrive to extract from £70 to £90 for alms and contributions; and even from those who beg their way fees are expected. The women here are not so rigidly confined as in other Mahometan towns, and are said to be sufficiently accessible to their devotees. Mecca has also little modern reputation for learning. No regular schools are kept, except for the common branches; but occasionally a few doctors seat themselves in the porticoes of the temple, and expound the Koran.

The great ornament of this city is its famous temple, containing the Kaaba, or house of the prophet. Strangers descend by a number of steps into a great hall, through which they are ushered into an inner square, and discover a plain square building, covered with black cloth, through which are seen patches of the dark stone of which the Kaaba is built. The most sacred relic here is the stone said to be brought by the angel Gabriel to form the foundation of the building. The grand ceremony of the pilgrims is that of going seven times round the Kaaba, reciting appointed verses and psalms, in honor of God and the prophet, and kissing the sacred stone each time. They are then conducted to the

well Zemzem, in another part of the same square, of which they take large draughts, and undergo a thorough ablution in its waters. A final ceremony is the pilgrimage to Mount Arafat, about thirty miles to the south of the city. The climate

here is very sultry, and there are even instances recorded of persons being suffocated in the streets. The balm of Mecca is only to be found in small quantities, but is not manufactured here. Long. 40° 15' E., lat. 21° 18' 9" N.

MECHANICS.

MECHAN'IC, *adj. & n. s.* } Fr. *mechanique*;
MECHAN'ICS, *n. s.* } Lat. *mechanicus*;
MECHAN'ICAL, *adj.* } Gr. *μηχανή*. Re-
MECHAN'ICALLY, *adv.* } lating to machi-
MECHAN'ICALNESS, *n. s.* } nery: a construc-
MECHANICIAN, } tor of machines:
MECHANISM. } mechanics is the

science or doctrine of their construction. See below. Mechanician, an adept in, or student of, mechanics or mechanical constructions: mechanism, action, or construction, according to the laws of mechanics.

Know you not, being *mechanical*, you ought not to walk upon a labouring day, without the sign of your profession? *Shakespeare.*

Hang him, *mechanical* salt-butter rogue! I will stare him out of his wits; I will hew him with my cudgel. *Id.*

Mechanick slaves,

With greasy aprons, rules, and hammers, shall
Uplift us to the view. *Id. Antony and Cleopatra.*

Do not bid me

Dismiss my soldiers, or capitulate
Again with Rome's *mechanicks*. *Id. Coriolanus.*

In the youth of a state, arms do flourish; in the middle age of a state, learning; and then both of them together for a time; in the declining age of a state, *mechanical* arts and merchandise. *Bacon.*

To make a god, a hero, or a king,

Descend to a *mechanick* dialect. *Roscommon.*

Some were figured like male, others like female
as rews, as *mechanicians* speak. *Boyle.*

Many a fair precept in poetry is like a seeming demonstration in mathematicks, very specious in the diagram, but failing in the *mechanick* operation. *Dryden.*

They suppose even the common animals that are in being, to have been formed *mechanically* among the rest. *Ray.*

A third proves a very heavy philosopher, who possibly would have made a good *mechanick*, and have done well enough at the useful philosophy of the spade or the anvil. *South.*

Dr. Wallis defines *mechanicks* to be the geometry of motion, a mathematical science, which shews the efforts of powers, or moving forces, so far as they are applied to engines, and demonstrates the laws of motion. *Harris.*

The main business of natural philosophy is to argue from phenomena without feigning hypotheses, and to deduce causes from effects till we come to the very first cause, which certainly is not *mechanical*; and not only to unfold the mechanism of the world, but chiefly to resolve these, and such like questions. *Newton.*

Later philosophers feign hypotheses for explaining all things *mechanically*, and refer other causes to metaphysics. *Id.*

After the chyle has passed through the lungs, nature continues her usual *mechanism*, to convert it into animal substances. *Arbuthnot on Aliments.*

He acknowledged nothing besides matter and motion; so that all must be performed either by *mechanism* or accident, either of which is wholly unaccountable. *Bentley.*

As the general quality of meat-roasting, with its several modifications, as to beef, mutton, pullets, &c., does not inhere in any one part of the jack; so neither does consciousness, with its several modes of sensation, intellection, volition, &c., inhere in any one, but is the result from the *mechanical* composition of the whole animal. *Pope.*

The rudiments of *topography*, with something of *mechanicks*, may be easily conveyed into the minds of acute young persons.

Watts's Improvement of the Mind.

MECHANICS. In furnishing our readers with a condensed treatise on this important branch of physics, it may be advisable, in the first instance, to examine the simple mechanical powers; by means of which we are enabled to adapt animal labor to the useful arts of life: their combination in the construction of machines will then be better understood.

The tyro is frequently disposed to imagine that, by means of the mechanical powers, a real increase of power is obtained; this, however, is not the fact. For instance, if a man be just able to convey 1 cwt. from the bottom to the top of his house in one minute's time, no mechanical engine would enable him to convey 3 cwt. to the same height in the same time; but the engine will enable him to convey 3 cwt. in three minutes; which amounts to the same thing as to say that the man could, without the engine, carry the 3 cwt. by going three times to the top of the house, and carrying 1 cwt. at a time, provided the load admitted of its being so divided. Therefore the engine increases the effect of a given force by lengthening the time of the operation; or (since uniform velocity is proportional to the time), by increasing the velocity of that force or power.

The power, or acting force, is so far from being increased by any machine, that a certain part of it is always lost by the resistance of medium, friction, or other unavoidable causes of machines; and this loss in some compound engines is very great.

Every machine, however complex it may be, must consist of some combination of the following simple machines, which are commonly called the mechanical powers.

1. The lever.
2. The wheel and axle.
3. The pulley.
4. The inclined plane
5. The wedge.
6. The screw.

This classification of the elements of machinery, although very simple when considered with respect to the extent and power of the results which spring from it, may be still farther simplified; not because any of the six machines, which we have just enumerated, admits of being resolved into more simple parts, but because some of them are identical in principle, and different only in appearance. We shall show, hereafter, that the wheel and axle is, in fact, a lever, and that the wedge and screw are only modifications of the inclined plane; so that it follows, that all the varieties of simple machines may be reduced to three:—

1. The lever.
2. The pulley.
3. The inclined plane.

The lever is the simplest of all machines, and is only a straight bar of iron, wood, or other material, supported on, and moveable round, a prop, called the fulcrum.

In the lever there are three circumstances to be principally attended to: 1. The fulcrum, or prop, by which it is supported, or on which it turns as an axis, or centre of motion. 2. The power to raise and support the weight. 3. The resistance, or weight to be raised or sustained.

The points of suspension are those points where the weights really are, or from which they hang freely.

The power and the weights are always supposed to act at right angles to the lever, except it be otherwise expressed.

The lever is distinguished into three sorts, according to the different situations of the fulcrum, or prop, and the power, with respect to each other.

In the lever of the first kind the fulcrum is placed between the power and the resistance; in the second kind the resistance is between the fulcrum and the power; and in the third kind the power is applied between the fulcrum and the resistance; and the power gained will in all cases be in proportion to the relative lengths of the two arms in the same lever. Plate I. MECHANICS, fig. 1, represents a lever of the first kind in one of its most common applications; viz. raising a large stone or weight d , and when used in this way it is, in practice, most commonly called a crow-bar, or hand-spike. The entire bar ef is, however, a lever, and the stone, or block g , is the fulcrum upon which it turns; consequently, from g to f (where the power is to be applied) will be the acting part of this lever, and from g to e its resisting part. The power gained by this form of the lever is as the resisting is contained in the acting part, or as fg is to ge ; so that if the lengths fg and ge be taken, and fg be divided by ge , the quotient will be the power gained. In the plate eg is contained twice in gf , or will gain a power of two, so that, whatever the weight of d may be, it will only appear to weigh half as much at f ; and, if the fulcrum g were removed so much nearer to e that the new distance between e and g should be contained twenty times in the distance gf , then a power of twenty would be gained, or d would be lifted at f with a power equal to one-twentieth of its real weight. In this case, however, f would

have to descend twenty times as far as e would rise, and therefore a very small motion would be communicated to d .

By the same rule, if moving the fulcrum g towards the resistance d increases the power of the lever at f , so will removing it in a contrary direction, or towards f , decrease it. Thus if g is supposed to be placed exactly half way between e and f , so as to make the acting and resisting arms equal, then no power at all will be gained at f ; because, whatever may be the weight placed on e , an equal power will be necessary to move it at f ; and as both e and f will in moving perform equal arcs of circles, or move through equal distances in equal times, so no power can be gained, this being in direct opposition to the laws of motion. Again, if the fulcrum g be supposed to be placed nearer to f than it is to e , then when moved will pass through a larger space than f , therefore e will generate more momentum than can be generated at f ; and consequently the apparent weight of d , as felt at f , will be increased, or a greater power must be exerted at f than is equivalent to the weight of d . Under such an arrangement it will be evident that, although the whole is a lever, it cannot be a mechanic power, unless it is admitted that from f to g is the resisting end, and from g to e the acting one; in this case, the power must be applied at e instead of f , and now it will be seen that it is the same lever as in the first case, but with its ends reversed.

In speaking of the power of levers, under all their several modifications, it must be observed that they must be considered as without weight; and, in making accurate experiments upon them, the weights of their several parts must be nicely balanced, otherwise the result will be affected. Thus, in the preceding figure, if the bar ef were of equal size throughout, it is evident there would be twice as much matter in the arm gf as in the shorter one eg , and this additional quantity of matter would preponderate and bear down the end f ; thus appearing to increase and assist the power. This difficulty will be met in theory by considering the whole bar ef as without weight, and in practice or experiment it must be obviated by hanging on a weight, or making the shorter arm eg so much thicker, as to cause it to be an exact balance for the longer arm gf when the lever is not in action.

A sufficient illustration of the first form of the lever may be found by reference to an ordinary poker. This, when employed to stir the fire, will have for its axis the bar upon which it rests; the coals are the weight to be overcome, whilst the hand may be considered as the power employed; and it is also with reference to this mechanical power that we construct the steel-yard.

BA, fig. 2, is a lever of the first kind, supported by an inflexible point O ; and, as the distance from O to B is twice as great as it is from O to A , the hand C , by exerting a force of one pound, may be placed in equilibrio with a weight of two pounds, or twice the amount. From this it will be seen that the length of the arm OB , multiplied into the power C , equals OA multiplied into the weight D , and as such that the power and the weight must be to each other

inversely as their distances from the fulcrum.

To further illustrate the matter let us suppose OB, the distance of the power from the prop, to be twenty inches, and OA, the distance of the weight from the prop, to be eight inches, it will then be found that a weight of five pounds may be supported by a power of only two pounds, because the distance of the weight from the fulcrum eight, multiplied into the weight five, makes forty, and as such the longer arm will only require a power of two, which, multiplied by twenty, will produce the same amount.

Let AG, fig. 3, represent an horizontal lever at rest. At the point B, equi-distant from A and G, is placed the fulcrum D, and at the extremities A and G are hung the equal weights E and F. Then the lever will continue at rest, the weights E and F being in equilibrium. For it is evident that, if the line AG be moved on the fulcrum B, its extremities A and G will each be carried with equal velocities in the periphery of the same circle. And, because AG is horizontal, the actions of the weights E F will be in direction at right angles to its length; that is to say, they will act in the direction of tangents to the said circle at the points A and G; or they will act in the direction of those particles of the periphery which may be imagined to coincide with the tangents. Each pressure, therefore, tends to move the correspondent extremity of the line AG in that very line of direction in which only it can move. Suppose the pressure at G to be removed, and the whole pressure at A will be employed in depressing the point A, or, which is necessarily in this case the same, in raising the point G: on account therefore of the equal velocities of the points A and G, the action of E at the point A will be the same as if it were exerted at G in the direction of the tangent CG. But again, suppose the equal weight F to be restored, and the point G will then be acted on by two equal and opposite forces, which, destroying each other's effect, will not produce motion, consequently the lever will continue at rest.

It is likewise evident that, if the radii AB and BG be not in a right line, the equal forces will nevertheless be in equilibrium, if they be applied in the directions of the tangents: thus, if BG be bent to the position BK, and the force F be there applied in the direction KIL, the equilibrium will remain as before.

What is called the hammer lever differs in nothing but its form from a lever of the first kind. Its name is derived from its use, that of drawing a nail out of wood by a hammer.

Suppose the shaft of a hammer to be five times as long as the iron part which draws the nail, the lower part resting on the board, as a fulcrum; then, by pulling backwards the end of the shaft, a man will draw a nail with one-fifth part of the power that he must use to pull it out with a pair of pincers; in which case the nail would move as fast as his hand; but with the hammer the hand moves five times as much as the nail, by the time that the nail is drawn out.

Let ACB, fig. 4, represent a lever of this sort, hinged at C, which is its prop or centre of motion. P is a power acting on the longer arm AC, at A by means of the cord DA going over

the pulley D; and W is a weight or resistance acting upon the end B of the shorter arm CB. If the power be to the weight, as CB is to CA, they are in equilibrio: thus, suppose W to be five pounds, acting at the distance of one foot from the centre of motion C, and P to be one pound, acting at A, five feet from the centre C, the power and weight will just balance each other.

Of levers of the first kind there are numerous instances. Scissors, pincers, snuffers, and all similar instruments, consist of two levers, of which the rivet by which they are united is the common fulcrum.

The balance, an instrument of very extensive use in comparing the weight of bodies, is a lever of the first kind, whose arms are of equal length. The points from which the weights are suspended, being equally distant from the centre of motion, will move with equal velocity; consequently, if equal weights be applied, their momenta will be equal, and the balance will remain in equilibrio.

In order to have a balance as perfect as possible, it is necessary to attend to the following circumstances.

1. The arms of the beam ought to be exactly equal, both as to weight and length.

2. The points from which the scales are suspended should be in a right line, passing through the centre of gravity of the beam; for by this the weights will act directly against each other, and no part of either will be lost, on account of an oblique direction.

3. If the fulcrum, or point upon which the beam turns, be placed in the centre of gravity of the beams, and if the fulcrum and the points of suspension be in the same right line, the balance will have no tendency to one position more than another, but will rest in any position it may be placed in, whether the scales be on or off, empty or loaded.

If the centre of gravity of the beam, when level, be immediately above the fulcrum, it will overset by the smallest action; that is, the end which is lowest will descend; and it will do this with more swiftness, the higher the centre of gravity be, and the less the points of suspension be loaded.

But, if the centre of gravity of the beam be immediately below the fulcrum, the beam will not rest in any position but when level; and if disturbed from that position, and then left at liberty, it will vibrate, and at last come to rest on the level. In a balance, therefore, the fulcrum ought always to be placed a little above the centre of gravity. Its vibrations will be quicker, and its horizontal tendency stronger, the lower the centre of gravity, and the less the weight upon the points of suspension.

4. The friction of the beam upon the axis ought to be as little as possible; because, should the friction be great, it would require a considerable force to overcome it; upon which account, though one weight should a little exceed the other, it will not preponderate, the excess not being sufficient to overcome the friction, and bear down the beam. The axis of motion should be formed with an edge like a knife, and made very hard: these edges are at first made sharp, and then rounded with a fine hone, or piece of

buff leather, which causes a sufficient bluntness, or rolling edge. On the regular form and excellence of this axis depends chiefly the perfection of this instrument.

5. The pivots, which form the axis or fulcrum, should be in a straight line, and at right angles to the beam.

6. The arms should be as long as possible relatively to their thickness, and the purposes for which they are intended, as the longer they are the more sensible is the balance.

They should also be made as stiff and inflexible as possible; for, if the beam be too weak, it will bend, and become untrue.

7. The rings, or the piece on which the axis bears, should be hard and well polished, parallel to each other, and of an oval form, that the axis may always keep its proper bearing, or remain always at the lowest point.

8. If the arms of a balance be unequal, the weights in equipoise will be unequal in the same proportion. The equality of the arms is of use, in scientific pursuits, chiefly in the making of weights by bisection. A balance with unequal arms will weigh as accurately as another of the same workmanship with equal arms, provided the standard weight itself be first counterpoised, then taken out of the scale, and the thing to be weighed be put into the scale, and adjusted against the counterpoise. Or, when proportional quantities only are considered, the bodies under examination may be weighed against the weights, taking care always to put the weights in the same scale, for then, though the bodies may not be really equal to the weights, yet their proportions amongst each other will be the same as if they had been accurately so.

9. Very delicate balances are not only useful in nice experiments, but are likewise much more expeditious than others in common weighing. If a pair of scales, with a certain load, be barely sensible to one-tenth of a grain, it will require a considerable time to ascertain the weight to that degree of accuracy, because the turn must be observed several times over, and is very small. But if no greater accuracy were required, and scales were used which would turn with 100th of a grain, a tenth of a grain, more or less, would make so great a difference in the turn that it would be seen immediately.

10. If a balance be found to turn with a certain addition, and is not moved by any smaller weight, a greater sensibility may be given to the balance, by producing a tremulous motion in its parts. Thus, if the edge of a blunt saw, a file, or other similar instrument, be drawn along any part of the case or support of the balance, it will produce a jarring, which will diminish the friction in the moving parts so much, that the turn will be evident with one-third, or one-fourth of the addition that would else have been required. In this way, a beam which would barely turn by the addition of the tenth of a grain, will turn with the thirtieth or fortieth of a grain.

The usefulness of having good balances for the weighing of substances, is not limited to the due performance of nice experiments, but they

also save much time in weighing when a less degree of accuracy is required. If a pair of scales, loaded with a certain weight, be barely sensible to one-tenth of a grain, it will require a considerable time to ascertain the weight to that degree of accuracy, because the turn must be observed several times over, and is very small; but if scales were used which would turn with the $\frac{1}{100}$ th part of a grain or less, supposing that the weight was not required to any greater accuracy than the tenths of grains, a single tenth of a grain, more or less, would make so great a difference in the turn of the scale that it would be seen immediately.

For the determination of the specific gravity of various substances, Muschenbroek says, he used a balance which turned within a fortieth of a grain when loaded with 200 or 300 grains; hence his balance determined the weight to the 12,000th of the weight.

Mr. Bolton's larger balance (mentioned in the Philosophical Transactions, vol. 66) loaded with a pound, probably of the common *avoirdupois*, would turn with one-tenth of a grain; so that the weight is determined to the 70,000th part of the weight.

Mr. Bolton's small balance, capable of weighing half an ounce, turned with the 100th part of a grain, which is the 24,000th part of the weight.

Mr. Reid's balance, mentioned in the same volume, when loaded with 55 lbs. *avoirdupois*, turned readily with less than a pennyweight, and very distinctly with four grains; so that it determined the weight to the 96,000th part of the weight in the scale; and, although so strong, was decidedly the best common balance whose performance has been recorded.

Mr. Whitehurst's balance, mentioned in the same volume, which weighed one pennyweight, was sensibly affected with the 2000th part of a grain, or the 48,000th part of the weight.

Mr. Nicholson's balance, noticed by him in his Dictionary of Chemistry, when loaded with 12,000 grains in each scale, turned with the $\frac{1}{40}$ th part of a grain, or the 84,000th part of the weight; so that this was a very good balance.

Mr. Alchome's balance (mentioned in the Philosophical Transactions vol. 77), with 15 lbs. at each end, turned with two grains; these were probably troy pounds, and so the accuracy of this balance went only to the 43,200th of the weight.

Dr. G. Fordyce (in the Philosophical Transactions, vol. 75) mentions a balance, made by Ramsden, turning on points instead of edges, which, when loaded with four or five ounces Troy, could ascertain the weight to the 16th part of a grain; that is to say, the 30,400th part of the weight in the scale.

Mr. Magellan's balance, mentioned by Nicholson in his Dictionary of Chemistry, with a pound in each scale, showed distinctly $\frac{1}{40}$ th of a grain, or the 70,000th part of the weight.

The Royal Society's balance, made by Ramsden, and turning on steel edges upon planes of polished crystal, is said to be sensible to the 7,000,000th part of the weight.

The comparison of the weights of different countries, as made by Mr. Tillet, with the

standard mark in the mint at Paris. was made with a balance which weighed a mark, or 4608 grains, and turned with a quarter of a grain, or the $\frac{1}{16}$ part of the weight in the scale; so that, although this balance might be reckoned a good one, it was in fact inferior in accuracy to any of the above mentioned, except Muschenbroek's.

Professor Theigel, in his Observations, says he used a balance, of which, when loaded with two marks, Cologne weight, at each end, the cock turned $\frac{1}{16}$ th of an inch with a richtpfenningtheil, which, according to the German weights, given in Mr. Gray's Elements of Pharmacy, is the $\frac{1}{131,072}$ part of the weight in each scale; so that this balance was a very good instrument.

The balance used by Mr. Cooper (Transactions Society of Arts, vol. 41) and made by Mr. Robinson, was sensibly affected by $\frac{1}{100}$ th of a grain, when the scales were loaded with 1000 grains at each end; so that this balance may be esteemed of very great accuracy, and very fit for the purposes to which it was applied; namely, the analysis of organic substances by fire.

In all researches which depend upon the accurate weighing of the articles employed, and of the products obtained, the accuracy of the balance employed ought to be stated, in order that it may be determined what confidence ought to be placed in the results obtained.

The mechanic will from this account of balances be able to form a proper estimate of the value to be attached to tables of specific gravity, or to chemical analysis, which depend on a supposed accuracy in weighing which is not attainable in practice. When, indeed, tables of specific gravity are given to five places of figures, the last figure is merely a guess figure; and, if they have more than five figures, the author, as Nicholson justly observes, either deceives intentionally, or through ignorance of decimals.

The statera, or steel-yard, fig. 5, is a lever of the first kind, whose fulcrum, or centre of motion, is at A; the weight B is suspended always at the same distance CA from the centre of motion; but the power, or counterpoise E, may be shifted from one point to another all along the arm AD; by which means a great variety of weights may be balanced by the same counterpoise E, whose momentum increases in the proportion of its distance from A. The whole length of the arm AD is marked with numbered divisions, each of which indicates the weight of B, which is balanced by the counterpoise E, when E is placed at that particular division. Those divisions are ascertained by trial; for the two arms of the steel-yard being unequal in weight, their momentums, when loaded with the weights B and E, cannot be estimated merely by the products of those weights multiplied each by its distance from A.

The bent-lever balance is represented in plate, MECHANICS, fig. 6. The substance to be weighed is placed in a dish F, suspended from the arm of a bent lever at L. The other arm CD is terminated in a heavy knob, which plays upon a graduated arch GH. As the weight depresses the arm CA, it is so constructed that the leverage of H is constantly diminished; and, since D is removed up the arch, its leverage is con-

stantly increased. When D acquires such a position that it counterpoises the weight, the division to which the index points on the graduated arch expresses the amount of the weight.

To graduate this instrument, let the first division be placed at the position which the index assumes when the dish F is unloaded. Then let the dish be successively loaded with one, two, three, &c., pounds, or ounces, or whatever denomination of weight it is designed that the divisions should indicate; and the successive positions of the index will determine the divisions.

Commercial balances are frequently misconstructed for fraudulent purposes, by making the arm, from which the substance to be weighed is suspended, longer than that from which the counterpoise is hung, thereby giving the counterpoise a greater leverage, and enabling it to support a weight proportionably greater than itself. The end to be attained by the use of such a balance may be defeated in several ways. If the object be merely to detect the fraud, it will be sufficient, after equilibrium has been established between the substance to be weighed and the weights, to transpose them, and put the substance to be weighed in the dish in which the weights were, and vice versa. If the balance be honestly constructed the equilibrium will be undisturbed; but if it be fraudulent the substance to be weighed will preponderate; since, after the transposition, it will have the greater leverage. But, if the object be not alone to detect the fraud, but to ascertain the true weight of the substance, let the counterpoise, which will produce equilibrium after transposition, be found; and let this and the former counterpoise be reduced to the same denomination of weight, and let the two counterpoises thus expressed be multiplied together, and the square root of the product extracted; that square root will be the true weight. Thus, for example, if one counterpoise be seven pounds, and the other nine pounds and one-seventh, the product $7 \times 9\frac{1}{7}$ lbs. is sixty-four, the square root of which is eight. Hence eight pounds is the true weight.

To illustrate the second form of the lever, we have only to place the point of support at one extremity, employ the power at the other, and attach the weight at an intermediate point. In this case the hand C, fig. 7, is placed at a point equal to three times the distance from the fulcrum O than the weight D; so that one pound will exactly balance three pounds. A reference to this form of the lever will serve to show why two men, carrying a weight between them, share the burthen to be supported in proportion to the distances at which they are placed; thus, if one man be at O, and the other at B, with an inflexible pole resting upon their shoulders, the latter person will have a mechanical advantage over the former. This is an expedient occasionally resorted to in the yoking of cattle, so that, if two horses of unequal strength are intended to pull the same vehicle, their forces may be equalised, by such a division of the bar to which they are attached, that the point of traction may be as much nearer to the stronger horse than to the weaker, as the strength of the former exceeds that of the latter.

The oars and rudders of vessels are levers of the second kind: the vessel is the weight or resistance, the water is the fulcrum, and the man who governs their motions is the power. A door is a lever of the second kind: the hinges are the centre of motion, the body of the door is the weight, and the hand by which it is moved is the power. A pair of bellows, nut-crackers, &c., are composed of two levers of the second kind. A chopping-knife is also an example. This instrument is fixed at one end, the fulcrum; the substance to be cut is placed under it, and the power is applied at the other extremity.

The third kind of lever, or that in which the power is applied between the fulcrum and the resistance, cannot be called a mechanical power, although it must be mentioned as a modification of the lever; for since its resisting arm is in all cases, except one, longer than the acting arm, and in that one case is equal to it, so it can never gain power, but in most of its arrangements must lose it. If the power and resistance represented in fig. 8 be conceived to change places with each other, then that figure will represent a lever of the third kind; for now b will be the power which is placed between the fulcrum a and the resistance at c , for the purpose of overcoming it; and since, if both the power and resistance were acting at c , they must be equal to each other, while the power must be increased in proportion to its proximity at a , so it follows that this lever must lose power whenever it is applied at any other situation than c , and that even there it can gain none.

The third kind of lever is used as little as possible, on account of the disadvantage to the moving power; but it cannot always be avoided; an example of it is seen in rearing a tall ladder against a wall, where the power or strength of a man is exerted at a short distance from one end, and the task cannot be performed without more effort than would be necessary to bear the ladder.

The bones of a man's arm, and the limbs of animals generally, are levers of the third order; for, when we lift a weight by the hand, the muscle that exerts its force to raise that weight is fixed to the bone about one-tenth part as far below the elbow as the hand is, and, the elbow being the centre round which the lower part of the arm turns, the muscle must therefore exert a force ten times as great as would be required simply for the suspension of the weight that is raised. The principle of vitality has an influence upon the strength of the muscles, for which we are wholly unable to account, and a weight, which would instantly break a muscle the moment it was dead, can be raised by that muscle while alive without the smallest pain or difficulty. Vitality, therefore, being ordained to communicate so much energy to such flexible materials as flesh and blood, a lever of the third sort became most admirably adapted to the animal frame, because, if the power be sufficient, its operations are quick, and it is exerted or resides in a small compass.

If the weight to be raised be of considerable bulk, and if it be fixed either above or below the end of the lever, it will vary in its intensity, according to the position of the lever. Let AB ,

fig. 9, represent a lever having a weight fixed above it, as A , of which the centre of gravity is a , and the line of direction ab : then is b the point in the lever on which the weight acts: but, if the lever is moved into the position CD , the line of direction of the weight will fall nearer to the fulcrum of the lever, and consequently act with less force upon it; but, if it is placed in the position EF , the line of direction will fall further from the fulcrum, and therefore act more on the lever. On the contrary, the opposite effects take place when the weight is below the lever.

If several levers be combined together in such a manner as that a weight, being appended by the first lever, may be supported by a power applied to the last, as in fig. 10, which consists of three levers of the first kind; and is so contrived that a power, applied at the point L of the lever C , may sustain a weight at the point S of the lever A , the power must here be to the weight, in a ratio, or proportion, compounded of the several ratios which those powers that can sustain the weight by the help of each lever, when used singly and apart from the rest, have to the weight. For instance, if the power which can sustain the weight P , by the help of the lever A , be to the weight as 1 to 5; and if the power which could sustain the same weight by the lever B alone be to the weight as 1 to 4; and if the power which could sustain the same weight by the lever C be to the weight as 1 to 5; then the power which will sustain the weight by help of the three levers joined together will be to the weight in a proportion consisting of the several proportions multiplied together, of 1 to 5, 1 to 4, and 1 to 5; that is, of 1 to 100.

For since in the lever A a power equal to one-fifth of the weight P , pressing down the lever at L , is sufficient to balance the weight; and since it is the same thing whether that power be applied to the lever A at L or the lever B at S , the point S bearing on the point L , a power equal to one-fifth of the weight P , being applied to the point S of the lever B , will support the weight; but one-fourth of the same power being applied to the point L of the lever B , and pushing the same upward, will as effectually depress the point S of the same lever, as if the whole power were applied at S ; consequently a power equal to one-fourth of one-fifth, that is, one-twentieth of the weight P , being applied to the point L of the lever B , and pushing up the same, will support the weight: in like manner, it matters not whether that force be applied to the point L of the lever B , or to the point S of the lever C ; since, if S be raised, L , which rests on it, must be raised also; but one-fifth of the power applied at the point L of the lever C , and pressing it downwards, will as effectually raise the point S of the same lever, as if the whole power were applied at S , and pushed up the same; consequently a power equal to one-fifth of one-twentieth, that is, 100th part of the weight P , being applied to the point L of the lever C , will balance the weight at the point S of the lever A .

We have now to describe a combination of the lever with the axis in peritrochio, by means of which the reciprocating motion of the lever is

made useful in giving a continued rectilinear motion to a heavy body, without changing the situation of the fulcrum of the lever. This contrivance is described by Belidor under the name of *le levier de la Garousse*, and is generally called in England the universal lever. FGH, fig. 11, is a straight lever, whose centre of motion is G: on its extremity F hang two bars FD, FE, the former of which has a hook to catch into the teeth of the wheel ACD, and the latter has its end slightly bent, so as to slide over the outer parts of those teeth. The axle A has a cord wound about it, to the lower end of which is attached the weight W. Now suppose the end H of the lever raised from H by I, while the other end descends from E to B; the bar FE will then push the point E of the wheel from E to C, while the hook D slides over an equal space on the other side of the wheel. After this, on the end H of the lever being brought down again by I to H, the end F ascends through BF, and the hook D raises up the left hand side of the wheel through a space equal to EC. Thus the reciprocating motion of the lever is made to communicate a continued rotatory motion to the wheel, and consequently to raise the weight W suspended from its axle by the cord. Here the advantage gained, neglecting friction and the stiffness of the cord, will be in the ratio compounded of the ratio of HG to GF, and the ratio of the radius of the wheel to that of the axle. Thus if HG were ten times GF, and the radius of the wheel ten times that of the axle, the power would then be to the weight raised nearly as 1 to 100.

This machine has been advantageously applied in drawing heavy loads along a plane nearly horizontal: in that case, the cord has been carried from A in nearly an horizontal direction, passed round a pulley *p*, attached to the load *w* or its carriage, and its end fixed to a post as at *a*, or perhaps to the frame of the wheel and axle. The pulley, it is obvious, almost doubles the advantage of the power; and since the force to be overcome when the system is once put in motion is not equivalent to the load *w*, but merely to the friction, and the rigidity of the rope, a very great weight may be moved in this manner by a comparatively small power. If the lever have another arm to the left of G (as it appears in the figure) equal to GH, a man may then work at each end, either by pressing upon it or by pulling downwards with a cord; and thus the laborers will alternately relieve each other. Sometimes a heart-wheel has been combined with this universal lever: but it is not, we think, a combination to be recommended in practice.

If the centre of motion G were vertically above the centre of the wheel, and if another bar and hook similar and equal in length to FD hung from the point *f*, FG being equal to GF; these two hooks would then catch alternately into the teeth on the rising side of the wheel, and thus produce the continual rotatory motion: but this construction has a practical disadvantage; for, when both bars work on the same side of the wheel, they will be in great danger of catching together and impeding each other's motions.

The wheel and axle is sometimes, without any

impropriety, named the perpetual lever; it being, in reality, a lever on whose arms the power and weight may always act perpendicularly, although the lever turns round its fulcrum. It is often constructed of the form represented in fig. 12, where CD is the cylinder, at the ends of which are the pivots FE, turning in the solid pieces of timber HF, AE; the weight W is raised by means of a rope, coiled about the cylinder; the power being applied to the wheel SSB, either by the cord II, or by the handles S, S, S. Sometimes, instead of the wheel, we find this machine made up of levers, fixed into the cylinder, as spokes into the nave of a wheel; at others, a simple handle serves for the application of the power, as in fig. 13, but the effect is still the same, except that the rotation is less uniform. In some cases the cylinder is horizontal, as in the figures, and in some kinds of cranes; in others it is vertical, as in the capstan, &c. But whether the cylinder be horizontal or vertical, this machine has a manifest advantage over the simple lever in point of convenience: for, by the continual rotation of the wheel, the weight may be raised to any height, or from any depth; while it could be elevated only a little way by any lever.

Fig. 14, represents a very powerful engine, nearly of this sort. ABKL, and CIDI, are two cylinders of unequal diameters (but the difference of these diameters must not be very great), firmly connected together, and moveable by means of the handle F, round the common axis EG, whose extremities rest upon two supports. The same rope is fastened with one end at D, and is wound round the small cylinder CD; then it descends and passes round the pulley Z, to the frame of which the weight W is suspended; and lastly, the other end of the rope is fastened at A to the large cylinder. Now, by moving the cylinders round, the rope will unwind itself from the small cylinder, and will coil itself round the larger cylinder, as will be apparent by a reference to the figure. If the cylinders were of equal diameters, the lower part Z of the rope, or the weight W which is suspended to it, would not be moved; for in that case as much of the rope as is disengaged from one cylinder at each revolution, would be coiled round the other cylinder; but, the cylinders being of unequal diameters, it is evident that at each revolution of the handle F more of the rope will be coiled round the cylinder ABKL than will be disengaged from the cylinder CIDI; and of course the weight W will be raised.

In the simple wheel and axle, whatever be its form or peculiarity, its mechanical efficacy depends on the ratio of the radius of the wheel to the radius of the axle; or, to speak more generally, the length of the lever by which the power acts, to the radius of the cylinder on which the rope which raises the weight is coiled. There are then two, and only two, ways in which this efficacy may be increased; viz. by increasing the leverage of the power, or by diminishing the radius of the cylinder which supports the weight. Now although, in a theoretical view, there is no limit to our power of increasing this efficacy, since we can conceive the leverage of the power

increased without limit, or the thickness of the cylinder diminished without limit, yet there is a practical limit to the increase of the mechanical efficacy of this engine.

If we attempt to increase this efficacy, by giving to the power a considerable leverage, the machine will become unwieldy; the power will work through a most inconveniently great space, and the practical disadvantages which will arise will more than counterbalance any thing which can be gained by the increased power.

If, on the other hand, we attempt to increase the efficacy by diminishing the thickness of the axle, we diminish the strength of that part of the machine which must support the weight; and the cases in which this great efficacy is required are precisely those cases in which the greatest weights are to be raised, or resistances to be overcome; and therefore where the greatest strength in those parts of the machine on which the weight or resistance acts are indispensably necessary.

In cases, therefore, where great resistances are to be overcome, it is a problem of considerable importance to assign a method by which, without rendering the machine more complex, sufficient strength may be preserved by preserving the thickness of the axle, the machine may not be rendered unwieldy by increasing very much the leverage of the power, and a high degree of power may be gained.

When heavy weights are to be raised, by means of the wheel and axis, a ratchet wheel and click or pall is employed to prevent the rope unwinding when the power is withdrawn. It will be seen, by reference to fig. 15, that the teeth are only inclined towards the side upon which the click rests, so that the opposite face of the tooth is nearly perpendicular to the rim of the wheel, and as such it is allowed by raising the click to turn in one direction, but its return is prevented by the end of the tooth against which it stops.

The capstan crane, and a variety of other simple mechanical arrangements, also derive their power from the wheel and axis. In fig. 16 is represented a very simple capstan. Here, if the upper barrel A were seventeen inches diameter, and the lower B sixteen inches, the pulley C being also sixteen inches diameter; it will be obvious that this simple capstan will be equivalent to an ordinary capstan of the same length of bar EF, and diameter of barrel B, combined with a sixteen-to-four tackle of pulleys; and at the same time free from the great loss by friction and bending of ropes, which would absorb at least a third of the power of a sixteen-fold tackle.

One peculiar advantage of this engine is, that the half difference of the radii of A and B may be diminished ad libitum, without weakening the cylinder, increasing the friction, or requiring any rapid curvature of the rope. This windlass has likewise the peculiar property of holding the weight at any part of its rise or fall, without needing a ratchet wheel and catch. Its only practical disadvantage is, that a great quantity of rope must be used to produce a moderate change in the position of the weight; but the quantity

of rope will be much less than what is requisite for an equivalent tackle of pulleys. This ingenious contrivance is generally ascribed to the celebrated George Eckhardt; and he probably invented it, without knowing that it had been used elsewhere; but Dr. Gregory states that he has seen a figure (from which our present figure is merely a copy), in some Chinese drawings of about a century old.

One of the most common practical applications of the wheel and axle is the crane used on wharfs and in warehouses, for raising and lowering heavy parcels, &c.; formerly it was a very common practice to work such cranes by a man walking in the inside of the large wheel, which was thus put into motion in the same way that circular cages are moved by an enclosed squirrel, or that the turnspit dog was formerly used for roasting meat; this was, however, not only a dangerous, but a very disadvantageous mode of employing strength, and is now almost entirely abandoned. The best and most efficacious method of employing human power, to a vertical wheel and axle, is to cover the exterior circumference of the large wheel with float or projecting boards, like a common water-wheel, and to permit a man or men to tread upon the boards as in walking, at the height of a line which forms the horizontal diameter of the wheel, for then the man's whole weight and power will be thrown into action at the point where it will have the greatest effect. This application of power was invented and first used by Mr. Hardie.

A very important application of the wheel and axle will be found in the construction of the tread wheel, which consists of a wheel and axis, furnished with walking boards similar to those which are attached to the periphery of a water-wheel. Fig. 17 illustrates a double apparatus of this description, as the wheels are furnished with teeth which work into each other, and in a similar way communicate motion to the small wheel *f*. The use of the tread-wheel may be traced to a very early period. Vitruvius furnishes several instances of its use, and the Chinese have employed machines of this description from the earliest period. It may, however, be proper to state, that its most useful application has been as an instrument of prison discipline, for which purpose, under proper modifications, it appears admirably adapted.

The wheel and axle is sometimes used to multiply motion, instead of to gain power as in the multiplying wheel of the common roasting jack, to which it is applied when the weight cannot conveniently have a long line of descent; a heavy weight is in this case made to act upon the axle, while the wheel, by its greatest circumference, winds up a much larger quantity of line than the simple descent of the weight could require, and thus the machine is made to go much longer without winding than it otherwise would do.

It is also useful for regulating unequal powers, as common watches or spring clocks, the nature of which will be found examined in their respective articles.

The *pulley* is a small wheel moveable upon its axis, with the circumference hollowed to receive

the cord, which is attached on the one hand to the moving power and on the other to the resisting force. The wheel or pulley is commonly fixed on a block or case, which admits the rope or cord to pass freely over the circumference of the wheel and the gorge of the pulley; that is the hollow part of the circumference, which receives the cord, is generally hollowed out angularly and not round; so that the cord, being in some measure pinched or compressed in this angle, will not be liable to glide or slip in its motion.

Pulleys are commonly made of wood or metal, and always turn upon an axis. When they are made of wood, it is better to fix the axis to the pulley, and to let all turn together in the place which sustains the pulley. The movement then being performed upon a less surface, will be less impeded by friction, and if the space which contains the pulley becomes larger, as it is only the lower part which can be effected, the aperture will be lengthened, the pulley will descend a little, but its circular motion will not be diminished; it is not so when the pulley turns upon its centre, for then, if the aperture which receives the axis enlarges, the enlargement is frequently not equal in all its parts.

By means of pulleys, burdens are elevated with greater ease, and in a more commodious manner, than they otherwise could be; more commodious because the motion is continued, and its direction may be changed so as to bring the whole force which is applied to it into immediate action; for by this means a horse, which can only exert his force in a horizontal direction, is able to overcome a vertical resistance. Burdens are moved with more ease by pulleys, because a great weight may be elevated by a small force properly applied. The power applied to a pulley draws in all directions without impediment, because the cord by which it acts is always a tangent to the circumference of the pulley, and consequently always perpendicular to the radius. The powers applied to pulleys act more forcibly in proportion as their distance from the axis is greater, whether the cords run in several grooves, or several pulleys of different diameters turn upon the same axis; those powers therefore which act at the greatest distance from the axis will have the advantage over the other.

Pulleys are *fixed* and *moveable*. A fixed pulley has no mechanical advantage, since the power and weight are equal. This apparatus is represented in plate II. fig. 1. It is, however, very convenient in accommodating the direction of the power to that of the resistance. Thus, by pulling downwards, we are able to draw a weight upwards. It has been already observed that, by means of this simple machine, a power in any direction whatever may be opposed to a resistance in any other direction.

The single moveable pulley, sometimes called a runner, is represented in fig. 2. In this machine the same rope extends from the power P to the fixed point E , and has the same tension throughout its whole length.

It is evident that this tension is equal to the power; for in that part PB of the rope, between the power and the fixed pulley, the power is

supported by this tension. The weight W is supported by the parts CA and DE of the string, and must be equal to the sum of the tensions, that is to twice the tension of the rope, or to twice the power. In this machine, therefore, a power is capable of opposing a resistance of twice its own amount.

In treating of the lever, it might have been observed, that the prop may be regarded as a third power, which keeps in equilibrium the motive force, and the resistance, or which concurs with the one, to enable it to sustain the effort of the other. If the lever of the second order, AB , fig. 3, have its fulcrum at B , the weight in the middle at C , and the power at A , half the weight being supported by the fulcrum, a power equal to the other half will keep it in equilibrium. This will apply to the illustration of the action of pulleys, which, when the weight is appended to the circumference, they may be considered as levers of the first kind, and when the weight is appended to the centre they may be considered as levers of the second kind: hence the ropes of the fixed pulley, hanging at equal distances from the centre (which must be regarded as the fulcrum), equal weights must be in equilibrium, exactly as they would be if placed in the scales of a common balance. But, if one weight be further from the centre or fulcrum than the other, they will balance each other only as they would in a steel-yard; and therefore, though still a lever of the first kind, a less weight will suspend a greater. Thus if the pulley, as in fig. 4, have different gorges, and the weight R of six ounces be hung at the distance of one inch from the fulcrum c , and the weight S of three ounces be hung at the distance of two inches from the same centre, the two weights R and S , though in the proportion of two to one, will balance each other. If the weight S were only two ounces it would produce the same effect upon R , provided its distance from the fulcrum were proportioned to the diminution of its weight, that is, if it were three times as far from the centre c as R .

We have now to show that the moveable pulley acts like a lever of the second order. Let the moveable pulley A , fig. 2, be fixed to the weight, with which it rises and falls. In comparing it with the lever alluded to, the fulcrum must be considered as at D : the weight acts upon the centre c , by means of the neck ch ; the power is applied at A ; and the line AD will represent the lever. The power, therefore, is twice as far from the fulcrum as the weight, and the effect in both cases is alike, viz. the proportion between the power and the weight, in order to balance each other, must be as one to two. It is evident, therefore, that the use of this pulley doubles the power, and that a man may raise twice as much by it as by his strength alone. Or, as variety in illustration will sometimes catch the attention, and familiarise a subject to some whose ideas of it would not otherwise be distinct, the action of this pulley may be viewed in a light somewhat different from the above. Every moveable pulley may be considered as hanging by two ropes equally stretched, and which must consequently bear equal parts of the weight; the rope DE being made fast at E , half the weight

is sustained by it, and the other part of the rope, to which the power is applied, has only the other half of the weight to support; consequently the advantage gained is as two to one.

When, as in fig. 5, the upper and fixed block or pulley-frame, contains two pulleys, which only turn upon their axes, and the lower moveable block contains also two, which not only turn on their axes but rise with the weight W , the advantage gained is as four to one; for each lower pulley will be acted upon by an equal part of the weight; and, because each pulley that moves with the weight diminishes one-half the power necessary to keep the weight in equilibrium, the power by which W may be sustained will be equal to half the weight divided by the number of lower pulleys; that is, as twice the number of the lower or moveable pulleys is to one, so is the weight suspended to the power.

But if the extremity A , fig. 6, be fixed to the lower block, it will sustain half as much as a pulley; consequently here the rule will be, As twice the number of moveable pulleys, adding unity, is to one, so is the weight to the power. To prevent the ropes a and b from rubbing against each other, the upper fixed pulley may have a double gorge. The pulley d does not belong to the system of pulleys, it is merely used in the plate, to separate from the ropes, and show more distinctly the power P .

If, instead of one rope going round all the moveable pulleys, the rope belonging to each of them be made fast at the top, as in fig. 7, a different proportion between the power and the weight will take place. Here it is evident that each pulley doubles the power: thus, if there are two pulleys, the power will sustain four times its own force or weight; if three pulleys, eight times its own weight; if four pulleys, sixteen times its own weight, as in the figure where the weight W , of sixteen ounces, is supported by the power P , of only one ounce. This arrangement of pulleys takes up much room, raises the weight very slowly, and is not convenient to fit up. It is therefore seldom used, notwithstanding the great power gained.

The large space occupied by pulleys, when arranged under each other, is an inconvenience that would often render them useless, and such an arrangement would increase the liability to entanglement, particularly on shipboard; it is therefore common to place all the pulleys in each block on the same pin by the side of each other. The advantage and the rule for the power are the same here as in fig. 5. In this kind of tackle the ropes are not exactly parallel, a direction which should be preserved as much as possible; but the defect is not very considerable.

The reason of the parallel direction of the ropes being better than an oblique one is, that less power is required to sustain the same weight; and in proportion to the obliquity of the ropes must be the increase of the power. When there are many pulleys in the same block, and the end of the rope to which the power is applied terminates over one of the outside pulleys, that pulley always endeavours to get into a line with the centre of suspension or middle of the moveable pulleys, from which the weight hangs. In con-

sequence of this, the friction of the pulleys against the sides of the block is so great as sometimes to equal the power. Hence the multiplication of pulleys thus used soon ceases to be advantageous; they are seldom effective if their number exceeds three or four.

Mr. Smeaton, for this reason, invented a system of pulleys arranged in two rows in each block, one larger and the other smaller; the force being applied in the middle, the rope passes on the larger pulleys till it arrives at the last, then returns through the whole of the smaller series, to the opposite side, and comes back again on the larger, to be finally attached in the middle.

By a reference to fig. 8 it will be seen that Mr. Smeaton's blocks give a force of twenty to one, the rope being applied in the middle of the outer series, and following the order of the figures from one to twenty-one.

Mr. James White, with a view to remove the imperfections in the pulley, and to avoid lateral friction, obtained a patent for a system of pulleys formed as in fig. 9. Each block, instead of containing separate shieves, consists of a series of shieves turned out of one solid piece, but varying in size in arithmetical proportion; so that each series, when viewed in profile, or section, appears like so many grooves cut on the surface of a very obtuse cone. Supposing that each cone contains six grooves, this will admit of twelve suspending lines as in the figure, and, admitting each of these grooves to be separate shieves of equal diameter, as in common blocks, then, since there are twelve lines, in order to bring the two blocks together, as much line must pass over the uppermost pulley as is equal to twelve times their distance asunder; but, from inspection of the figure, it is evident that the second pulley cannot receive the full quantity of line by as much as is equal to the distance betwixt it and the first. In like manner the third pulley receives less than the first, by as much as is the distance between the first and third, and so on to the last, which receives only one-twelfth of the whole; for this receives its share of line, n , from a fixed point in the upper frame, which gives it nothing, while all the others receive the line, partly by turning to meet it, and partly by the line coming to meet them. The outermost pulley would therefore make twelve revolutions, while that which received the line, n , would make but one; and the intermediate lines and velocities would be a series of arithmetical proportionals, of which, if the first number were one, the last would always be equal to the whole number of terms: it follows, therefore, that if the diameters of certain grooves in the same substance be exactly adapted to the above series (the line itself being supposed incapable of stretching, and of no magnitude), the necessity of using several detached shieves in each frame or block will be obviated, and, with that, most of the inconveniences to which the pulley, as commonly constructed, is liable. In practice the grooves cannot, however, be in true arithmetical proportion; for the diameter of the rope employed must be deducted from each term, without which the smaller grooves, to which such diameter may bear a large proportion, would be too large, and would introduce worse defects

than this improved construction tends to obviate.

Mr. Garnett proposed removing the friction attendant upon pulleys, by placing a number of small friction wheels, or rollers, round the hole in each shieve, so that the central pin, instead of passing through a mere hole in the shieve, would pass between these rollers. This was, however, not only found very expensive, but was liable to get out of order when great weights were raised, and consequently it has never been much used. A very considerable improvement was made in the pulley by Lieut. Shulldham, who adopts the conical form of Mr. White, but uses a double cone placed base to base, but in one piece; and by thus using but one compound shieve, with an axis fixed to itself, two large friction-wheels can be admitted, and are sufficient for each block. The rope is so reeved or passed through these blocks as to end in the centre; consequently the friction is not only greatly diminished, but likewise all tendency to run to one side; but as a double series of ropes must be used, proceeding from the outsides towards the centre of the blocks, and the pull is made by two ropes instead of one (of course of smaller dimensions than those generally used), there may perhaps be more danger of entanglement than with common blocks.

A plane superficies inclined to the horizon is another mechanical power; its use being to raise weights from one level to another, by the application of much less force than would be necessary to raise them perpendicularly. Thus, in fig. 10, AB represents a plane inclined to the horizontal plane AC; where, if the weight D be rolled upwards from A to B, the force necessary for the purpose will be found to be much less than that which would be required to raise it directly and perpendicularly from C to B.

In this case the effect which is produced consists in the raising of the weight from the level of AC to the level of AB; but, to effect this, the power must have moved from A to B; for the power acts in that direction, whilst the weight or gravity of the body acts in the direction of the perpendicular CB; therefore, the velocity of the weight in this engine being to the velocity of the power as the perpendicular height BC of the plane is to its length AB, the equilibrium takes place when the weight is to the power as the length of the plane is to its perpendicular height.

This property may be clearly shown by the following experiments:—Let AB, fig. 11, be a plane moveable upon the horizontal plane AC; viz. so as to admit of its being placed at any required angle of inclination, which is easily accomplished by means of a hinge at A, and a prop between the two planes. The upper part of the plane must be furnished with a pulley B, over which a string may easily run. Let the cylindrical weight, D, be made to turn upon slender pins in the frame F, in which the hook *e* is fastened with a string *eBH*, which, passing over the pulley D, holds the weight E suspended at its other extremity. The pulley should be so situated that the rope *eB* may be parallel to the plane.

This plane may be fixed at any angle of inclination, and it will always be found, that if the weight of the body E be to the weight of the body

D, together with that of its frame F, as the perpendicular height CB of the plane is to its length AB, the power E will just support the cylinder D, with its frame F upon the plane, and the least touch of a finger will cause the cylinder D to ascend or descend; the counterpoise or power E moving at the same time the contrary way.

It is evident that the smaller the angle of inclination is, the less force is required to draw up the weight D; and of course, when the angle of inclination vanishes or becomes nothing, the least force will be sufficient to move the body; that is, when the plane AB becomes parallel to the horizon, or upon a horizontal plane, the heaviest body might be moved with the least power, were it not for the friction, which is occasioned by the irregularity of the contiguous surfaces, &c.

If three inclined planes be formed at different angles to the plane of the horizon, and as many carriages connected by threads, with weights passing over a similar number of pulleys at top, it will be found that the carriage supported by the central plane will arrive first at top; though, to produce this effect, the middle plane must (as is represented in fig. 12) be twice as long as it is high.

A reference to this circumstance will serve to explain upon what principle the late Mr. Rennie was enabled to construct an edifice, which, like the lighthouse of Smeaton, appears formed to resist every attack of the warring elements.

This great national work consists of a mass of sunken stones thrown promiscuously into the water, leaving them to find their own base, which must of course be considerably extended, in most cases gradually narrowing from about 200 feet to an apex of thirty feet.

A fixed inclined plane is often of use in assisting the elevation of great weights, by means of other machinery. It is supposed that in all the edifices of remote antiquity, where great masses of stone were employed, as in the pyramids of Egypt, and the Druidical temples of this country, these vast blocks were elevated on inclined planes of earth, or of scaffolding, with the assistance also of levers and rollers. Inclined planes are frequently used for drawing boats out of one canal into another; and sometimes the local circumstances are such that this may be done with great convenience, merely by allowing a boat to descend, and turn the axis which raises an empty one. An example of this may be seen, on a large scale, in the duke of Bridgewater's canal. This canal is extended, above ground, for forty miles on one level; an underground navigation, twelve miles long, joins it at Worsley, leading to the coal mines under Walkden Moor. At a height of thirty-five yards and a half above this is another subterraneous portion, nearly six miles in length. The connexion between these levels is formed by an inclined plane; the boats are let down loaded, and proceed three miles along the tunnel into the open canal. The inclined plane is fixed in a stratum of stone, which fortunately has the most eligible inclination of one in four, and is thirty-three yards in thickness, affording the most advantageous means of fixing every part of the machinery with perfect security.

The whole length of the plane is 151 yards, besides a lock of eighteen yards at the upper end.

Inclined planes are also universally employed for facilitating the ascent of heights, by men or by animals; they may either be uniform, as roads, or the general inclination of the surface may be superseded by the formation of separate steps or stairs. The inclination of the surface may be governed by the proportion of the strength of the animal to its weight, the force required to support any weight on a plane being to the whole weight as the height of the plane to its length; and, if the plane be a little less inclined than the exact equilibrium would require, the animal will be able to acquire a sufficient velocity at first to carry it easily up the ascent with a motion nearly equable. The strength of a laborer may be advantageously employed in ascending a given height by a flight of steps, and placing himself on a stage which may raise a weight by its descent; but it appears that the force of other animals is less calculated for exertions of this kind.

A *wedge* is a solid figure, which is called in geometry a triangular prism. Its two ends are equal and similar triangles, and its three sides are rectangular parallelograms. This figure is represented in figs. 13 and 14.

The wedge is very generally used in cleaving timber, in which case its edge is introduced into a cleft already made to receive it, and it is urged at the back by percussion. The friction of the faces of the wedge with the timber ought to be sufficient to prevent its recoil.

The wedge may be considered as formed by two inclined planes, placed base to base, their altitudes forming the back of the wedge. The power, being generally applied perpendicularly to the back, will be parallel to the common base. But it is a more difficult matter to say in what direction the resistance is to be considered as acting against the face of the wedge.

In the theory of the wedge there are introduced so many conditions, which are perfectly inapplicable in practice, so many gratuitous assumptions and suppositions so inconsistent with practical truth, that the whole doctrine has little or no value.

One of the circumstances which creates the greatest difficulty, in the theory of the wedge, is the very heterogeneous nature of the resistance, and the force or power by which it is overcome.

The resistance is generally that modification of force called pressure. The power, which is opposed to this resistance is commonly that species of action called percussion. These are modifications of force so totally different as not even to admit of comparison. It has been generally thought that there is no blow or impact, however slight, which will not overcome a pressure, a resistance however great. From which it would seem to follow, that an infinitely small impact is equivalent to an infinitely great pressure. Be this as it may, however, the great difference between these modifications of force is sufficiently evident to demonstrate the total impossibility of establishing the condition of equilibrium of a machine in which the weight or resistance is a force of the one, and the power is a force of the other species.

Nothing, therefore, can more plainly demonstrate the inutility of the theory of the wedge than that, in this theory, the power is supposed to be a pressure exerted on the back of the wedge, which is supposed to be capable of balancing the effect of the resistance in producing the recoil of the wedge. In all cases, where the wedge is practically used, the friction of its faces with the resisting substance is sufficient to prevent the recoil; so that, strictly speaking, no force whatever is necessary to sustain the machine in equilibrium, and to move it pressure is never resorted to, inasmuch as the slightest percussion is far more effective.

The only general theoretical principle respecting the wedge which obtains always in practice is, that its power is increased by diminishing the angle.

All cutting instruments, as knives, swords, hatchets, chisels, planes, &c., are wedges. In these cases the harder, in general, the substance to be divided is, the greater will be the angle of the wedge. Thus, chisels for cutting soft woods are sharper than those used for the harder species, and these, again, are sharper than chisels used for cutting metals.

The *screw* is the last mechanical power to be noticed; it is composed of two parts, one of which is called the screw, and consists of a spiral protuberance, called the thread, which is wound or wrapt round a cylinder; and the other, called the nut, is perforated to the dimensions of the cylinder, and in the internal cavity is cut a spiral groove, adapted to receive the thread.

Let ADGE, plate III., fig. 1, represent a cylinder, and ABC any flexible substance of a thickness altogether inconsiderable or evanescent. Suppose ABC to be a triangle, having a right angle at A, and one of the legs AB, containing the right angle, to be applied to the cylinder in a line parallel to its axis. Imagine, now, the cylinder to turn on its axis so that the triangle ABC may be rolled or wrapped close on its surface. The lines BC, and all others, as IK, LR, parallel to it, will then be contiguous to, or coincident with, the peripheries of circles whose planes are all at right angles to the axis, and consequently parallel to each other. But the line AC will become a curve AQLM a NOP, &c., which is called a helix. This curve will always, or in every part, proceed from one towards the other end of the cylinder it enwraps, and will make equal angles with the generating circle of the cylinder. For any one of these angles, αki , will be produced by the application of another angle AKI, always equal to the angle ACB.

Suppose the cylinder ADGE to be perpendicular to the horizon, the lines BC and its parallels, together with all their correspondent circles on the cylinder, will then become horizontal. Let the line AC now represent an inclined plane, whose height is AB, and the helix being of the same length and height, and equally inclined to the horizon throughout, will not differ in mechanical effect from the inclined plane. That is to say, the tendency of a weight to descend on the inclined plane will be exactly the same as on the helix.

Let AL be the perpendicular distance between two adjacent threads. Draw the horizontal line LR intersecting AC in R . Then LR will be equal to the circumference of the cylinder, and AR will be equal to one revolution of the helix. But AR represents an inclined plane, equivalent in power to the helix. Every helix, therefore, is equivalent in power to an inclined plane whose length is equal to one revolution of the helix, and height equal to the distance between two adjacent threads measured by a line parallel to the axis of the cylinder contained within the helix.

If the horizontal thickness of the nut be disregarded, it will not differ from a weight to be sustained on the helical plane. Consequently it will be kept in equilibrio by a horizontal force, which is to that of the weight as the perpendicular distance between two adjacent threads is to the circumference of the cylinder. Or, if the power be applied in the direction of the threads of the screw, the equilibrium will be had when the power is to the weight as the perpendicular distance between the two adjacent threads is to the length of one thread of the screw.

But there are few, if any, instances where the screw is used without the lever. If an arm EF , fig. 2, be applied to move the nut, the weight and the power may be considered as acting upon a lever, whose fulcrum is at the axis of the cylinder. And, therefore, the proportions last found must be compounded with the ratio of the semi-diameter of the cylinder to the distance of E from the axis of motion.

It frequently happens that the lever, by which the power acts, is attached to the nut, and the screw is capable only of a longitudinal motion. Thus, in the press represented in fig. 3, the board C , moveable between the sides of the frame, is urged by the screw CB , capable of moving directly upwards or downwards, but not of revolving. The nut F is worked by the lever DE . Every complete revolution of the nut urges the screw upwards through a space equal to the distance between two contiguous threads.

The proportion of the weight to the power, or the mechanical efficacy of the screw, depends on the proportion of the circumference described by the power, to the distance between two contiguous threads. Hence it is evident that the efficacy of the screws may be increased, either by increasing the length of the lever by which the power acts, or by diminishing the distance between the threads. To both of these, there are, however, practical limits.

If the leverage of the power be very much increased, the power will work through an inconveniently great space, and the machine will become unwieldy. If, on the other hand, the thread of the screw be made very small and fine, it will be torn off by a great resistance in passing through the nut.

These inconveniences have been obviated by a contrivance of Mr. Hunter, the surgeon, which, while it preserves all the requisite strength and compactness in the machine, gives it an almost unlimited degree of mechanical efficacy.

A perspective drawing of this contrivance is given in fig. 4. EE is a strong frame in which

a board D moves, so that when it is forced towards the bottom, it will exert a pressure on any substance placed between it and the bottom. To this moveable board D is attached a cylinder B , on which the thread of a screw is raised. C is a fixed nut through which a screw A plays. The screw A is a hollow cylinder, the interior of which is a nut adapted to receive the screw B . When the screw A is turned once round it advances through the nut C , through a space equal to the distance between two contiguous threads; so that, if the screw B were not supposed to act, the board D would advance towards the bottom, through a distance equal to the distance between the threads of the screw A . But, while the screw A advances through the nut C by its revolution, the very same cause makes the screw B move towards C through a space equal to the distance between two contiguous threads of B ; or, by turning A , the nut contained in the inner concave surface of A is turned upon the screw B . Now, if the threads of the two screws A and B were perfectly equal, the effect of these two motions would be, that the board D would retain its position, inasmuch as the effect of one screw, in moving it downwards, would be exactly equal to the effect of the other screw in moving it upwards.

But, if we suppose the interval between the threads of the screw B to be somewhat less than the interval between the threads of the screw A , the effect will be different. In this case, one revolution will move the screw A downwards, through a space equal to the interval between its threads, while the screw B will be moved within the screw A and upwards through a space equal to the interval between its threads. The combined effect will be, that the screw B , and the board C to which it is attached, will be moved downwards through a space equal to the difference of the distances between the threads of the two screws.

Thus, if the screw A have twenty threads in an inch, and the screw B have twenty-one; in one revolution, A is moved downwards through the twentieth of an inch. Suppose that the nut A did not, in this motion, turn on B , it is plain, then, that B and the board C would be moved down through the one-twentieth of an inch. Suppose, then, that the screw B was turned round once within the nut A , the screw B and the board C would be raised through the $\frac{1}{20}$ th of an inch. Its position would then be below its original position by the excess of $\frac{1}{20}$ of an inch above $\frac{1}{21}$ st of an inch; that is, by $\frac{1}{420}$ th of an inch.

To render the explanation clearer, we have here supposed things to happen in succession, which really happen together. The same motion which advances the screw A downwards draws the screw B upwards; but the final effect is the same as if these two motions took place in succession.

It is plain, therefore, that the effect of this machine is the same as that of a simple screw in which the distance between the threads is equal to the difference of the distances between the threads of the two screws A and B ; and, therefore, that the ratio of the power to the weight is the difference between the distances of

the threads of the two screws to the circumference described by the power.

The mechanical efficacy is, therefore, increased by diminishing the difference of the distance between the threads of the screws. If the circumference described by the power be twenty inches, and one screw have twenty threads to an inch, and the other twenty-one, the power will be to the weight as the difference between $\frac{1}{20}$ and $\frac{1}{21}$, or $\frac{1}{420}$ to twenty, or as 1 to 8400. If, however, one screw have thirty threads, and the other thirty-one to an inch, then the power is to the weight as the difference between $\frac{1}{30}$ and $\frac{1}{31}$, or $\frac{1}{930}$ to twenty, or as 1 to 18,600.

The threads of each screw may be constructed of any size and strength which may be required, and yet so very nearly equal that any degree of power may be imparted to the machine. Thus, by the preceding investigation, it appears that two screws, constructed with thirty and thirty-one threads in a foot, are equivalent to a single screw with 930 threads in a foot.

A machine for showing the force or power of the screw may be contrived in the following manner. Let the wheel C, fig. 5, have a screw on its axis, working in the teeth of the wheel D, which suppose to be forty-eight in number. It is plain that for every time the wheel C and screw are turned round by the winch A, the wheel D will be moved one tooth by the screw; and, therefore, in forty-eight revolutions of the winch, the wheel D will be turned once round. Then, if the circumference of a circle, described by the handle of the winch A, be equal to the circumference of a groove round the wheel D, the velocity of the handle will be forty-eight times as great as the velocity of any given point in the groove. Consequently, if a line G goes round the groove, and has a weight of forty-eight pounds hung to it, a power equal to one pound at the handle will balance and support the weight. To prove this by experiment, let the circumference of the grooves of the wheels C and D be equal to one another; and then if a weight H, of one pound, be suspended by a line going round the groove of the wheel C, it will balance a weight of forty-eight pounds hanging by the line G; and a small addition to the weight H will cause it to descend, and so raise up the other weight.

If a line G, instead of going round the groove of the wheel D, goes round its axle I, the power of the machine will be as much increased as the circumference of the groove exceeds the circumference of the axle: which, supposing it to be six times, then one pound at H will balance six times forty-eight, or 288 pounds, hung to the line on the axle; and hence the power or advantage of this machine will be as 288 to 1. That is to say, a man, who by his natural strength could lift one cwt., will be able to raise 288 cwt. by this engine. If a system of pulleys were applied to the cord H, the power would be increased to an amazing degree. When a screw acts in a wheel in this manner, it is called an *endless screw*.

When it is not employed in turning a wheel, it consists of two parts; the first is called the *male*, or *outside screw*, being cut in such a man-

ner, as to have a prominent part going round the cylinder in a spiral manner; which prominent part is called the *thread of the screw*; the other part, which is called the *female*, or *inside screw*, is a solid body, containing a hollow cylinder, whose concave surface is cut in the same manner as the convex surface of the male screw, so that the prominent parts of the one may fit the concave parts of the other.

The very slow motion which may be imparted to a screw, by a very considerable motion in the power, renders it an instrument peculiarly well adapted to the measurement of very minute spaces. The manner of applying it to this purpose is easily explained. Suppose that a screw is cut so as to have fifty threads in an inch, and that round its head is placed a graduated circle, on which an index attached to the screw plays. In one revolution of the screw its points, or any thing moved by its point, is moved through a space equal to the fiftieth part of an inch. The circle on which the index plays may be easily divided into 100 equal parts, and it follows that the motion of the index through one of these parts corresponds to $\frac{1}{100}$ part of a complete revolution: since, in a complete revolution, the screw moves through the fiftieth part of an inch, it follows that, when the index moves over one division of the circle, the screw moves through the 5000th part of an inch.

A screw constructed for this purpose is called a *micrometer screw*: it is used with great effect in astronomical instruments, where very minute portions of degrees or divisions on graduated instruments are to be ascertained. The limit of accuracy of any divided instrument adapted for measuring spaces or distances is primarily the magnitude of the smallest division on it. If it be required to determine the distance from any given division to a point which is placed somewhere between two divisions, it is easy to conclude that the distance sought is greater than a certain number of divisions, and less than a number greater than that by one. But how much greater than the one or less than the other the mere graduation of the instrument does not indicate. Now, suppose that a micrometer screw is placed on the instrument, its length being parallel to the graduated face, and that the point of the screw, or rather a wire which is moved by the point of the screw, is brought exactly opposite to one of those divisions between which the point, whose exact position is to be determined, lies. If the screw be turned until the wire is moved by its point from coincidence with the adjacent division till it coincides with the point, the number of turns of the screw, and parts of a turn, will indicate exactly the distance of the point from the adjacent division.

Mr. Watt's screw-wrench is a kind of lever-vice, and is a convenient tool for securing and loosening square-headed screws, and for other similar purposes. The moveable cap of the instrument is secured at any required distance from the fixed one, sometimes by means of a screw, and sometimes by means of a short wedge driven in at the base of the sliding bar. To both these methods, however, as usually applied, there are objections arising from the lia-

bility of the former to be injured, and of the latter to give way under the great strain which is sometimes put upon the instrument.

Mr. Watt's wrench is represented in fig. 6; *ii* is the fixed bar terminated by the fixed chap *h*, *jjj* is an iron case enclosing and fixed firmly on the bar *ii* to pass through, and secured to the sliding bar *ll*. It will be observed that the lower end of this bar is cut off very obliquely, so as to form a long low wedge; *mn* is a low wedge, still longer than that just described.

In order to make use of the instrument, the wedge *mn* is to be withdrawn, the chap *k* is to be moved on the bar *ii*, till the screw head, or other object to be acted on, is closely embraced between the two chaps; the moveable wedge is then to be inserted point foremost, and is to be driven home by a light blow or two of a hammer, or may be forced in sufficiently even by hand.

The long line of bearing that the two wedges have on each other renders it impossible that they should give way, while, at the same time, a very moderate blow on the point of the moveable wedge will be sufficient to disengage it.

It is by no means absolutely necessary to take out the moveable wedge previous to adjusting the instrument; all that is required being that the sliding bar *ll* should move easily.

It will therefore be found convenient to drill a hole through the point of the wedge at *m*, and insert a small pin in order to prevent the wedge from slipping out of the case *jj*, and being lost.

We cannot better illustrate the practical effects produced by the mechanical powers than by refer-

Richard Lovell Edgeworth, esq., and which was published in the *Scientific Gazette*, edited by Mr. Partington. It is thus described by its ingenious inventor:—

We do not mean to undervalue either the application of strict demonstration to problems in mechanics, or the exhibition of the most accurate machinery in philosophical lectures; but we wish to point out a method of giving a general notion of the mechanical powers to our readers, which shall be immediately obvious to their comprehension, and which may serve as a sure foundation for future improvement. When a person perceives the effect of his own bodily exertions with different engines, and when he can compare, in a rough manner, their relative advantages, he is not disposed to reject their assistance, or to expect more than is reasonable from their application. The young theorist in mechanics thinks he can produce a perpetual motion, but if he has been accustomed to refer to the plain dictates of common sense and experience, on this, as well as on every other subject, he will not easily be led astray by such visionary theories.

To bring the sense of feeling to our assistance in teaching the uses of the mechanic powers, the following apparatus was constructed, to which we have given the name of *panorganon*.

It is composed of two principal parts; a frame to contain the moving machinery, and a capstan, or windlass, which is erected on a sill

or plank that is sunk a few inches in the ground; the frame is by this means, and by six braces or props, rendered steady. The cross rail, or transom, is strengthened by braces and a king-post to make it lighter and cheaper. The capstan consists of an upright shaft, upon which are fixed two drums, about which a rope may be wound up, and two levers or arms by which it may be turned round. There is also a screw of iron coiled round the lower part of the shaft, to show the properties of the screw as a mechanical power. The rope which goes round the drum passes over one of the pulleys near the top of the frame, and under another pulley near the bottom of the frame. As two drums of different sizes are employed it is necessary to have an upright roller to conduct the rope in a proper direction to the pulleys when either of the drums is used. Near the frame, and in the direction in which the rope runs, is laid a platform or road of deal boards, one board in breadth, and twenty or thirty feet long, upon which a small sledge, loaded with different weights, may be drawn.

F F, fig. 7, the frame; *b, b*,—braces to keep the frame steady; *a, a*,—angular braces to strengthen the transom, and also a king-post. S—*a* round taper shaft, strengthened above and below the mortices with iron hoops; L, L,—two arms or levers, by which the shaft, &c., are to be moved round; D D— the drum, which has two rims of different circumferences; R—the roller to conduct the rope; P—the pulley round which the rope passes to the larger drum, another pulley being placed to answer to the smaller drum; p 3—a pulley through which the rope passes when the sledge is used on the road of deal boards; S—the sledge, with pieces of hard wood attached to it to guide it on the road.

Uses of the panorganon.—As this machine is to be moved by the force of men or children, and as their force varies not only with the strength and weight of each individual, but also according to the different manner in which that strength or weight is applied, it is, in the first place, requisite to establish one determinate mode of applying human force to the machine; and also a method of determining the relative force of each individual whose strength is applied to it.

To estimate the force with which a person can draw horizontally by a rope over his shoulder.

Experiment 1.—Hang a common long scale beam, fig. 8. (without scales or chains), from the top post of the machine. Tie a rope to the hook of the scale-beam, where the chains of the scale are usually hung, and pass it through the pulley p 3, which is about four feet from the ground; let the person pull this rope from 1, towards 2, as is shown in the first figure, turning his back to the machine, and pulling the rope over his shoulder. As the pulley may be either too high or too low to permit the rope to be horizontal, the person who pulls it should be placed ten or fifteen feet from the machine, which will lessen the angular direction of the cord, and the inaccuracy of the experiment. Hang weights to the other end of the scale-beam, till the person that pulls can but just walk forward, pulling fairly without propping his feet against any thing. This weight will estimate the force with which he can draw

horizontally by a rope over his shoulder. Let a child who tries this walk on the board with dry shoes; let him afterwards chalk his shoes, and afterwards try it with his shoes soaped: he will find that he can pull with different degrees of force in these different circumstances; but when he tries the following, let his shoes be always dry, that his force may be always the same.

To show the power of the three different sorts of levers.—Experiment 2. Instead of pulling the cord that comes from the scale-beam, as in the last experiment, over the shoulder of the boy, hook it to the extreme end of the lever I, fig. 9. This lever is passed through a socket, in which it can be shifted from one of its ends towards the other; and can be fastened at any place by the screw of the socket. This socket has two gudgeons, upon which it, and the lever which it contains, can turn. This socket and its gudgeons can be lifted out of the holes in which it plays, between the rail R R, and may be put into the other hole at R R, fig. 10. Loop another rope to the other end of this lever, and let the boy pull as before. Perhaps it should be pointed out, that the boy must walk in a direction contrary to that in which he walked before, viz. from 1 towards 3, in fig. 7. The height in which the weight ascends, and the distance to which the boy advances, should be carefully marked and measured; and it will be found that he can raise the weight to the same height, advancing through the same space as in the former experiment. In this case, as both ends of the lever moved through equal spaces, the lever only changed the direction of the motion, and added no mechanical power to the direct strength of the boy.

Experiment 3.—Shift the lever to its extremity in the socket; the middle of the lever will now be opposite to the pulley, fig. 11; hook it to the rope that goes through the pulley P 3, and fasten to the other end of the lever the rope by which the boy is to pull. This will be a lever of the second kind, as it is called in books of mechanics, in using which the resistance is placed between the centre of the motion or fulcrum and the moving power. He will now raise double the weight that he did in experiment 2, and he will advance through double the space.

Experiment 4.—Shift the lever and the socket which form the axis (without shifting the lever from the place in which it was in the socket in the last experiment), to the holes that are prepared for it at R R, fig. 10. The free end of the lever E will now be opposite to the rope, and to the pulley (over which the rope comes from the scale-beam); hook this rope to it, and hook the rope by which the boy pulls to the middle of the lever. The effect will now be different to what it was in the two last experiments; the boy will advance only half as far, and will raise only half as much weight as before. This is called a lever of the third sort. The first and second kinds of levers are used in quarrying; and the operations of many tools may be referred to them. The third kind of lever is employed but seldom, but its properties may be observed with advantage, whilst a long ladder is raised, as the man who raises it is obliged to exert an increasing force till the ladder is nearly perpendicular. When

this lever is used, it is obvious from what has been said, that, as the power must always pass through less space than the thing which is to be moved, it can never be of service in gaining power. But the object of some machines is to increase velocity instead of obtaining power, as in a sledge-hammer moved by mill-work.

The experiments on levers may be varied at pleasure, increasing or diminishing the mechanical advantages so as to balance the power and resistance, to accustom the learners to calculate the relation between the power and the effect in different circumstances, always pointing out, that whatever excess there is in the due power, or in the resistance, is always compensated by the difference of space through which the inferior passes.

The experiments which we have mentioned are sufficiently satisfactory to a pupil, as to the immediate relation between the power and the resistance; but the different spaces, through which the power and the resistance move when one exceeds the other, cannot be obvious unless they pass through much larger spaces than levers will permit.

Experiment 5.—Place the sledge on the farthest end of the wooden road in fig. 7; fasten a rope to the sledge, and conduct it through the lowest pulley and through the pulley P 3, so as that the boy may be enabled to draw it by the rope passed over his shoulder. The sledge must now be loaded, till the boy can but just advance with short steps steadily upon the wooden road; this must be done with care, as there will be but just room for him beside the rope. He will meet the sledge exactly in the middle of the road, from which he will step aside to pass the sledge. Let the time of this experiment be noted. It is obvious that the boy and the sledge move with equal velocity, therefore there is no mechanical advantage obtained by the pulleys. The weight that he can draw will be almost half a hundred, if he weigh about nine stone; but the exact force with which the boy draws is to be known by experiment 1.

The wheel and axle.—This simple apparatus is usually called, in mechanics, the axis in peritrochio. A hard name which might be spared, as the word windlass or capstan would convey a more distinct idea.

Experiment 6.—To the largest drum in fig. 7 fasten a cord, and pass it through the pulley P downwards, and then through the pulley to the sledge placed at the end of the wooden road, which is farthest from the machine. Let the boy, by a rope fastened to the extremity of one of the arms of the capstan, and passed over his shoulder, draw the capstan round; he will wind the rope round the drum, and draw the sledge upon its road. To make the sledge advance twenty-four feet upon its road, the boy must have walked circularly 144 feet, which is six times as far, and he will be able to draw about 3 cwt. which is six times as much as in the last experiment.

It may now be pointed out, that the difference of space passed through by the power in this experiment is exactly equal to the difference of weight which the boy could draw without the capstan.

Experiment 7.—Let the rope be now attached to the smaller drum; the boy will draw nearly twice as much weight upon the sledge as before, and will go through double the space.

Experiment 8.—Where there are a number of persons, let five or six of them, whose power of drawing (estimated as in experiment 1) amounts to six times as much as the force of the boy at the capstan, pull at the end of the rope which was fastened to the sledge, they will balance the force of the boy at the capstan; either they or he, by a sudden pull, may advance, but if they pull fairly there will be no advantage on either part. In this experiment the rope should pass through the pulley P 3, and should be coiled round the larger drum. And it must also be observed, that, in all experiments upon the motion of bodies in which there is much friction, as where a sledge is employed, the results are never so uniform as in other circumstances.

The pulley.—Upon the pulley we shall say little, as it is in every body's hands, and experiments may be tried upon it without any particular apparatus. It should, however, be distinctly inculcated that the power is not increased by a fixed pulley. For this purpose a wheel without a rim, or, to speak with more propriety, a number of spokes, fixed in a nave, should be employed, as in fig. 12. Pieces like the heads of crutches should be fixed at the ends of these spokes, to receive a piece of girth-web which is used instead of a cord, because a cord would be unsteady; and a strap of iron with a hook to it should play upon the centre, by which it may at times be suspended, and from which at other times a weight may be hung.

Experiment 9.—Let this skeleton of a pulley be hung by the iron strap from the transom of the frame; fasten a piece of web to one of the radii, and another to the end of the opposite radius. If two boys of equal weight pull these pieces of girth-web they will balance each other; or two equal weights hung to these webs will be in equilibrio. If a piece of girth-web be put round the uppermost radius, two equal weights hung at the ends of it will remain immoveable; but if either of them be pulled, or if a small additional weight be added to either of them, it will descend, and the web will apply itself successively to the ascending radii, and will detach itself from those that are descending. If this movement be carefully considered, it will be perceived that the web, in unfolding itself, acts in the same manner upon the radii as two ropes would if they hung to the extremities of the opposite radii in succession. The two radii which are opposite may be considered as a lever of the first sort, where the centre is in the middle of the lever; as each end moves through an equal space there is no mechanical advantage; but, if this skeleton pulley be employed as a common block or tackle, its motions and properties will be entirely different.

Experiment 10.—Nail a piece of girth-web to a post, at a distance of three or four feet from the ground; fasten the other end of it to one of the radii, shown in fig. 12. Fasten another piece of web to the opposite radius, and let a boy hold the skeleton pulley suspended by the

web; hook weights to the strap that hangs from the centre. The end of the radius, to which the fixed girth-web is fastened, will remain immoveable; but, if the boy pulls the web which he holds in his hand upwards, he will be able to lift nearly double the weight which he can raise from the ground by a simple rope without the machine, and he will perceive that his hand moves through twice as great a space as the weight ascends; he has, therefore, the mechanical advantage which he would have by a lever of the second sort, as in experiment 3. Let a piece of web be put round the under radii; let one end of it be nailed to the post, and the other to be held by the boy, and it will represent the application of a rope to a moveable pulley; if its motion be carefully considered, it will appear that the radii, as they successively apply themselves to the web, represent a series of levers of the second kind. A pulley is nothing more than an infinite number of such levers; the cord at one end of the diameter serving as a fulcrum for the wheel during its progress. If this skeleton pulley be used horizontally, instead of perpendicularly, the circumstances which have been mentioned will appear more obvious.

Upon the wooden road lay down a piece of girth-web; nail one end of it to the road; place the pulley upon the web at the other end of the board, and, bringing the web over the radii, let the boy take hold of it, draw the loaded sledge fastened to the hook at the centre of the pulley: he will draw nearly twice as much in this manner as he could without the pulley.

Here the web lying on the road shows more distinctly that it is quiescent where the lowest radius touches it; and if the radii, as they tread upon it, are observed, their points will appear at rest, whilst the centre of the pulley will go as fast as the sledge, and the top of each radius successively (and the boy's hand which unfolds the web), will move twice as fast as the centre of the pulley and the sledge.

If a person, holding a stick in his hand, observes the relative motion of the top, and the middle, and the bottom of the stick, whilst he inclines it, he will see that the bottom of the stick has no motion on the ground, and that the middle has only half the motion of the top. The property of the pulley has been dwelt upon, because it elucidates the motion of a wheel rolling upon the ground; and it explains a common paradox, which appears at first inexplicable:—‘The bottom of a rolling wheel never moves upon the road.’ This is asserted only of a wheel moving over hard ground, which, in fact, may be considered rather as laying down its circumference upon the road, than as moving upon it.

The inclined plane and the wedge.—The inclined plane is next to be considered. When a heavy body is to be raised, it is often convenient to lay a sloping artificial road of planks, up which it may be pushed or drawn. This mechanical power, however, is but of little service without the assistance of wheels or rollers: we shall therefore speak of it as it is applied in another manner, under the name of the wedge, which is in fact a moving inclined plane.

Let one end of the lever, fig. 13, with a wheel at one end of it, be hinged to the post of the frame, by means of a gudgeon driven or screwed into the post. To prevent this lever from deviating sideways, let a slip of wood be connected with it by a nail, which shall be fast in the lever, by which it moves freely in a hole in the rail. The other end of this slip must be fastened to a stake driven into the ground at three or four feet from the lever, at one side of it, and towards the end in which the wheel is fixed.

Experiment 11.—Under the wheel of this lever place an inclined plane or half wedge on the wooden road, with rollers under it, to prevent friction; fasten a rope to the foremost end of the wedge, and pass it through pulleys, as before shown in the fifth experiment. Let a boy draw the sledge by this rope over his shoulder, and he will find that, as he advances, it will raise the weight upwards: the wedge is five feet long, and elevated one foot. Now, if the perpendicular ascent of the weight, and the space through which he advances be compared, he will find that the space through which he has passed will be five times as great as that through which the weight has ascended; and that this wedge has enabled him to raise five times as much as he could raise without it, if his strength were applied, as in experiment 1, without any mechanical advantage. By making this wedge in two parts hinged together, with a graduated piece to keep them asunder, the wedge may be adjusted to any given obliquity; and it will always be found that the mechanical advantage of the wedge may be ascertained by comparing its perpendicular elevation with its base. If the base of the wedge is two, three, four, five, or any other number of times greater than its height, it will enable the boy to raise respectively two, three, four, or five times more weight than he could do in experiment 1, by which his power is estimated.

The screw.—The screw, as is shown in fig. 14, is an inclined plane wound round a cylinder; the height of all its revolutions round the cylinder taken together, compared with the space through which the power that turns it passes, is the measure of its mechanical advantage. Let the lever, used in the last experiment, be turned in such a manner as to reach from its gudgeon to the shaft of the panorganon, guided by an attendant lever, as before. Let the wheel rest upon the lowest helix or thread of the screw; as the arms of the shaft are turned round, the wheel will ascend, and carry up the weight which is fastened to the lever. As the situation of the screw prevents the weight from being exactly suspended from the centre of the screw, proper allowance must be made for this in estimating the force of the screw, or determining the mechanical advantage gained by the lever: this can be done by measuring the perpendicular ascent of the weight, which in all cases is better, and more expeditious, than measuring the parts of the machine, and estimating its force by calculation; because the different diameters of ropes, and other small circumstances, are frequently mistaken in estimates.

The space passed through in the moving power, and by that which it moves, are infallible

data for estimating the powers of engines. Two material subjects of experiments yet remain for the panorganon; friction and wheels of carriages. We repeat that, in this article, it is not intended as a part of our design to write a treatise upon science; but merely to point out methods of initiating persons generally in the rudiments of knowledge, and of giving them a clear and distinct view of those principles upon which they are founded. No preceptor, who has had experience, will cavil at the superficial knowledge of an uninformed person upon these subjects; he will perceive that the general view, which we wish to give our pupils of the useful arts and sciences, must certainly tend to form a taste for literature and investigation. The scholar has learned only to talk—we wish to teach our pupils to think—upon the various objects of human speculation.

The panorganon may be employed in trying the resistance of air and water; the force of different muscles; and in a great variety of amusing and useful experiments. In academies, and private families, it may be erected in the place allotted for amusement, where it will furnish entertainment for many a vacant hour.

A compound engine either consists of one simple mechanical power repeated two or more times; or it consists of several simple mechanical powers variously combined and connected with each other. In any case the power and the effect must be estimated from the result of the effects of all the component simple mechanisms separately considered, which is done in the following manner:—

Find what proportion the power bears to the effect in each simple mechanism; put all those ratios one under the other, and find their sum, which sum will express the proportion between the power and the effect of the whole compound engine. Thus suppose that a machine is compounded of three simple mechanical powers, viz. a lever, an inclined plane, and a moveable pulley; and suppose that a power applied to one end of the lever will produce a double effect at the other end; for instance, one pound will balance two pounds; then the proportion of the power to the effect is as one to two. Suppose also, that, in the inclined plane, the power is to the effect as three to seven; and lastly, that, in the pulley, the power is to the effect as one to two. Now those three ratios being written one under the other thus,

$$\begin{array}{rcl} 1 & : & 2 \\ 3 & : & 7 \\ 1 & : & 2 \end{array}$$

$$3 : 28$$

and multiplied, viz. all the antecedents together, and all the consequents together, the two products thence arising will exhibit the proportion which the power bears to the effect in the whole machine and engine; viz. that a power of three will balance a weight of twenty-eight

Otherwise the effect of a compound engine may be computed by considering the velocities of the power and of the effect; for they are to

each other inversely as their velocities, viz. the power is to the effect as the velocity of the latter is to that of the former. Thus in a certain compound engine we find that the power must move through 500 feet, whilst the weight moves through three feet; we therefore conclude that a power of three pounds will balance a weight of 500 pounds in that machine, and of course a little more than three pounds will raise the 500 pounds weight.

Machines are interposed chiefly for three reasons: 1. To accommodate the direction of the moving force to that of the resistance which is to be overcome. 2. To render a power which has a fixed and certain velocity efficacious in performing work with a different velocity. 3. To enable a natural power, having a certain determinate intensity, to balance or to overcome another power or obstacle, whose intensity or resistance is greater. Each of these purposes may be accomplished in different ways, viz. either by machines which have a motion round some fixed and supported point, as the lever, the pulley, and the wheel and axle; or by those which, instead of being supported by a fixed point, about which they move, furnish to the resistance or body to be moved a solid path, along which it is impelled, as the inclined plane, the wedge, and the screw. Compound machines are peculiar combinations of the six.

Simplicity in the construction of machines cannot be too warmly recommended to the young engineer; for multiplicity of parts and of motions increases the expense of erection, augments the friction, and multiplies the danger of failure by the bending or by the inaccurate adjustment of the parts. In consequence of the effects of friction, it is well known to all engaged

in the combination of wheels or levers, or other powers, can one weight be made to move another with a greater or even an equal momentum; and by the multiplication of wheels, levers, &c., the effect of the machine, instead of being increased, is diminished in proportion to the augmented friction of the moving parts. Hence it follows that, in practice, effect is lost by mechanical combination, but gained by simplification; and that the most perfect machine is that which operates by the fewest moving parts. In order to contrive a simpler machine, to be theoretically equivalent in power to a complex one, the following rule may be observed: construct the various parts of the simple machine so that the velocity of the impelled point shall be to that of the working point in the same ratio as they are in the compound machine; then will the effects of these two machines be the same, so far as depends upon pure theory; but in practice the simpler will be the more efficacious, in consequence of the diminution of friction.

For an example, suppose the compound machine, plate IV. fig. 1, were to be proposed, in order that a more simple one might be constructed to perform the same work; let CA, the lever to which the power is applied, be ten feet, DE five feet in diameter, EF = 2 feet, HI = 3 feet, GH = 5 feet, and KL = 1 foot, the latter being the cylinder on which the rope raising

the weight W folds. Now the diameter of the circle described by the power at A is twenty feet; and to find the diameter of the circle whose circumference is equal to the space passed over by W in one revolution of the lever CA, reduce the following fraction: viz.

$$\frac{DE}{2AC} \times \frac{GH}{EF} \times \frac{KL}{HI} = \frac{5}{20} \times \frac{5}{2} \times \frac{1}{3} = \frac{5}{24}$$

of 2 AC; consequently the velocity of the weight is $\frac{5}{24}$ of that of the power. And hence, if

upon the vertical axis, CM fig. 2, a wheel be fixed, the diameter kl of which is equal to $4\frac{1}{2}$ feet (that is $\frac{5}{24}$ of 2 AC), the weight W will be raised the

height by the simple as by the compound machine, at every revolution of the power A. So that the simple machine, ACM kl, will be at last equal in effect to the compound one AC MDEFGHIKL, and the wheels DE, EF, GH, HI, and KL, are extraneous, and probably prejudicial.

One of the most simple and effectual methods of equalising the irregularities, in large machines, is by the use of a *fly-wheel*. A fly-wheel is a heavy disc or hoop, balanced on its axis, and so connected with the machinery as to turn rapidly round with it, and as to receive its motion from the impelling power. Let us suppose a case in which the impelling power is perfectly uniform, but the resistance or load is irregular and intermitting. Thus, suppose an overshot water-wheel used by a regular and uniform fall of water, applied to work a common suction pump. Here the impelling power is constant and uniform, but the resistance only acts during the ascent of the piston, and the machine is unloaded during its descent. As the impelling power, during the descent of the piston, has nothing to overcome except the inertia of the machine, and the friction of the parts, it will urge the piston down with a rapidly accelerated force, so that at the end of the stroke the piston will have acquired a considerable velocity. But, in the ascent of the piston, the impelling power is opposed by the column of water which the piston has to raise. This continually retards the wheel, and when the piston has reached the summit of the stroke all its former acceleration is destroyed, and the same hobbling irregular motion is continued. If a fly-wheel be attached to such a machine, almost all this irregularity will be removed. When the heavy mass of the fly-wheel has been put in rapid motion, by the impelling power, it will produce two very obvious effects; by virtue of its inertia, it will oppose a considerable resistance to any sudden acceleration, and also to any sudden retardation

the motion which has been imparted to it, and to resist the reception of more. By this, on the ascent of the piston, the weight of the column of water is dragged up, not alone by the energy of the prime mover as before, but by the moving force which has been imparted to the fly-wheel, and which that wheel endeavours to keep. On the other hand, when the piston descends unloaded, the action of the prime

mover upon it, which before caused its sudden and rapid acceleration, is now intercepted by the fly-wheel, which, by its great inertia, refuses to receive that rapid degree of acceleration which had been before produced. The power of a fly-wheel to resist acceleration is proportional to the square of its diameter, and, therefore, by sufficiently increasing its size and weight, we may be enabled to equalise the most desultory and irregular motions in the machinery.

In the example which we have just given there was a variable resistance opposed by a uniform power. The reverse of this often happens, and a variable power is opposed to a constant resistance. Thus in the single-acting steam engine, when the piston has been forced down by the pressure of steam, it is usually drawn up again by a weight suspended from the opposite end of the beam. In this case the mover is very unequal and desultory, and would never serve any purpose in which uniformity of action is necessary. But if a fly-wheel be attached to the machine, the momentum which it acquires during the descent of the piston, it will retain by virtue of its inertia during the suspension of the power in the ascent; and this force will drive the machinery or act against the resistance, whatever it be, in the intervals of the intermission of the power.

A very remarkable instance of the use of a fly occurs in the engine constructed by Mr. Vauloue, for driving the piles of Westminster Bridge. In this machine a heavy mass is elevated by horse-power acting upon it through the intervention of a rope and wheel-work, and when it has reached a considerable height it is disengaged, and permitted to fall upon the pile which is to be driven. Now the moment this mass is disengaged the machine, having no resistance, and the horses being relieved from the weight they before encountered, would immediately fall forward. This is prevented by connecting the wheel-work with a heavy fly, the inertia of which opposes the strength of the animals when they are suddenly relieved from the weight of the elevated mass.

Wheels, like pulleys, may be considered as an assemblage of levers. Of wheels there are two kinds: the first always turn in the same space upon an axis fixed to the centre of the wheel, the pivots of which turn in holes or cavities which serve as a prop: such are the wheels of clocks, of mills, &c. Wheels of this kind receive or transmit the movement by teeth, or cogs placed round the circumference.

Wheels of the other kind, that is, which turn upon their circumference, have their centre or axletree in a direction parallel to the plane on which they move; such are the wheels of waggon, coaches, &c. They have, therefore, two movements: the one of their centre which advances in a right line, and the other of all their parts which perform a circular motion round the centre.

When wheels of the first kind are put in action, it is common to place upon the same axle a great wheel and a small one, called a pinion, and sometimes a nut, the teeth of which coincide with the teeth of another large wheel. In large machines, trundles are often substituted for pi-

nions or nuts, and perform their office; these are cylinders or spindles parallel to each other, and placed circularly in two plain pieces of wood at the top and bottom. The teeth of the wheel then catch the spinles of the trundle as they do the cogs of the nut or pinion. The mechanism is the same in both cases: so that it suffices to examine the manner of hooking or catching of wheels and pinions.

Wheels of the first kind, those whose motion is confined to the same place, may be considered as levers of the first order; the arms of which are the radii of the wheels and nuts, and which have their prop at the axle. Let $A B C$, fig. 3, be three wheels, and $a b c$ their corresponding pinions or nuts. The nut, or, what is the same thing, the cylinder a , sustains the weight P ; the wheel A , which has the same axle as the cylinder a , catches the nut b ; the wheel B , which has the same axle as the nut b , catches the nut c , the wheel C , which has the same axle as the nut c , is drawn at its circumference by the power Q ; and the whole system is in equilibrium. Here the weight P acts by the radii of the nuts; but the power Q acts by the radii of the wheels. Suppose the radii of the wheels to be four times those of the nuts; and that the first are eight inches, and the other two inches. To preserve an equilibrium, it is necessary that the power should be to the resistance as the product of the arms of the lever of resistance is to the product of the arms of the lever of power, that is, in an inverse ratio of the length of the arms of the lever; these products are found by multiplying the one by the other, that is, the radii of the wheels and the radii of the nuts. The first product will be 512; and the second eight, in which case the power Q ought to be to the weight P as eight is to 512, or as one is to sixty-four. Hence it follows that, to preserve an equilibrium, whatever is the diameter of the wheels and of the nuts, the power is to the resistance as the product of the radii of the nuts is to the product of the radii of the wheels.

It appears then that this form of machines is capable of giving a great advantage to the force or power over the resistance; but this advantage is necessarily acquired at the expense of time or velocity, when the machine passes from a state of rest to that of motion. For there is always as much lost in time as there is gained in force, and so reciprocally.

There is often occasion, especially in clock work, that the number of the revolutions of the wheels and that of the nuts should bear a certain proportion. This is performed by giving a convenient number of teeth or cogs to the wheels and nuts: as for example, if it was required that a wheel should make only one revolution while a nut should make four; there must be four times as many teeth in the wheel as there are cogs in the nut. Suppose $A B C D$, fig. 4, to be four wheels, the first of which A , catches the nut b fixed to the second B ; this catches the nut c fixed to the third wheel C ; this third catches the nut d fixed to the fourth D ; lastly, this fourth wheel catches the last nut e ; now to obtain the proportion between the number of revolutions of the first wheel A , and the number of

revolutions of the last nut e , multiply the number of teeth of the wheel A by the number of teeth of the wheel B ; this first product by the number of teeth in the wheel C , and the second product by the number of teeth in the wheel D ; then multiply the number of cogs of the nut b by the number of cogs in the nut c ; this first product by the number of cogs in the nut d , and the second product by the number of cogs of the last nut e ; the last products of the teeth of the wheels and the cogs of the nuts will give the proportion required.

It may then be established, as a general rule, that the number of the revolutions of the first wheel, A , is to the number of the revolutions of the last nut as the product of the cogs of the nuts is to the product of the teeth of the wheels. Hence it follows, that it is not necessary to determine the number of cogs and teeth which each nut and wheel should have in particular; it suffices that the proportion of the products of all the cogs to the product of all the teeth shall be such as is required.

In forming the teeth of wheels it is of considerable importance to determine their proper curvature, so that the motion may be communicated equally, and with as little friction as possible. Two methods of accomplishing this end have been recommended: of these the first was originally proposed by M. De La Hire, who affirmed that the pressure would be uniform if the teeth were formed into epicycloids; and M. Camus, in his *Cours de Mathematiques*, has pursued M. De La Hire's principle, and applied it to the various cases which are likely to arise in practice. The construction, however, is subject to a limitation; on which account a second method has been proposed, which secures the perfect uniformity of action without any such limitation. This method consists in making both teeth portions of involutes of circles. Thus, let $II F$, $K E B$, fig. 5, be the wheels to which the teeth are to be accommodated: the acting face $G C H$ of the tooth a must have the form of the curve traced by the extremity H of the flexible line $F A H$, as it is unwrapped from the circumference; and, in like manner, the acting face of the tooth b must be formed by the unwrapping of a thread from the circumference of the circle, $K E b$. The line $F C E$ drawn to touch both circles, will cut the surfaces of the two teeth in C , the point where they touch each other: the faces of both teeth will always touch each other at a point in the common tangent to both circles, and the force arising from their mutual pressure will always act in the direction of the circumferences of the wheels at E and F . This form, by allowing the teeth to act on each other through the whole extent of the line $F C E$, will admit of several teeth to be acting at the same time; and thus, by dividing the pressure among several teeth, will diminish its quantity upon any one of them, and therefore diminish the cause of the indentations they unavoidably make upon each other. Consequently, a considerable number of teeth thus formed acting at once cause the communication of motion to be extremely smooth and regular.

In regulating the number of teeth in the wheel,

and the pinion which works it, it should be so contrived that the same teeth should be engaged as seldom as possible, in order to avoid inequality of wear. For example, let us suppose that the number of teeth in a wheel were exactly ten times the number of leaves in the pinion; each leaf in the pinion would engage every tenth tooth of the wheel, and would work inevitably on the same ten teeth every revolution of the wheel. If it were possible that all the teeth and leaves could be constructed with mathematical precision, and perfect and absolute similitude, and that no accidental difference, owing to any want of uniformity in the material of which they are formed, could exist, this would be a matter of no consequence, and the wear would still be even and equable. But, as these perfections never can exist, the inevitable inequalities incident, as well to the nature of the material of which wheels are constructed as to the forms they derive even from the most perfect mechanical construction, must be compensated by making the teeth and leaves work, so that each leaf shall successively engage with all the other teeth of the wheel before it engages a second time with any one of them.

This is accomplished by making the number of teeth and the number of leaves prime to each other, that is, such that no integer divides both exactly. The manner in which this is commonly done is by making the number of teeth such, that it is just one more than a number which is exactly divisible by the number of leaves. This is what millwrights call making a hunting cog. Thus, suppose that there are ten leaves, and that the diameter of the wheel is about six times that of the pinion. If this were the exact ratio, there would be just sixty feet, and after each revolution of the wheel the same teeth and leaves would be continually engaged, each leaf taking every sixth tooth. But if the diameter of the wheel be made somewhat greater than six times that of the pinion, so as to admit sixty-one teeth; then, after six revolutions of the pinion, the first leaf will be engaged with the tooth immediately before that in which it had worked at the commencement, and after six more revolutions it will be engaged with the tooth before that, or the second tooth from that at which the motion commenced. Thus, it is evident, that the wheel must revolve sixty-one times, and the pinion 6×61 , or 366 times before the same teeth will be again engaged. By these means the inequalities of wear, arising from inequalities of form and material, will compensate each other.

To determine the dimensions of two conical wheels, to communicate motion in any oblique angle, the following graphic method may be used. Suppose ab , fig. 6, to represent the shaft or axle of one wheel, and de the axle of another wheel, the angle x in which they intersect each other being equal to the angle in which the motion is proposed to be communicated: let it be required for the shaft de to revolve m times while the shaft ab revolves n times; and let the line ii be drawn parallel to de , at a distance equal to the radius of the base of the wheel, whose axle is de . Then draw a line kk parallel to ab , and at a distance yg from it, which shall be to the

distance yh as m to n : through x the point of intersection of the lines first proposed, and y the intersection of the two lines il , kk , respectively parallel to the two former, draw the line xyw , which will be the pitch line of the two conical wheels, or the line in which the teeth of those wheels act upon one another; and gy , hy , will represent the exterior radii of the wheels, which will work one against the other after the manner shown in fig. 7, where the corresponding parts are marked by the same letters. A third shaft and wheel may easily be applied to communicate motion in a different direction from either of the former: as the shaft and wheel $rstv$ in fig. 7.

It is manifest, from what is done above, that this is nothing more than to divide an angle bax into two parts whose sines shall have a given ratio of m to n ; a well known problem, which solved algebraically gives the theorem, $2 \sin$.

$\frac{1}{2} gxy = 2 \sin. \frac{1}{2} g x h \frac{m}{m+n}$. So that all which by the common rules of plane trigonometry; and thus the accuracy of the construction may be established.

It will be easy to show that complex wheel-work obeys the law of virtual velocities; for, since the teeth are equal, the circumference of each wheel moves with the same velocity as that of the circumference of the pinion by which it is driven, which is equally evident if they be connected by straps or work by friction. Now, since each wheel revolves in the same time with its axle, the velocities of their circumferences are as their circumferences, or, what is the same, as their radii or number of teeth. Hence, the velocity of the power, or the velocity of the circumference of the first wheel, is to that of the first axle as their radii. But the velocity of the circumference of the first axle is equal to the velocity of the circumference of the second wheel, which is to that of the second axle as their radii; and, by continuing this reasoning, we shall find that the velocity of the power is to that of the weight as the product of the radii of the wheels to the product of the radii of all the axles; and, therefore, that the power multiplied by the velocity of the power is equal to the weight multiplied by the velocity of the weight.

This will be better understood by an example. Let the number of teeth in the first wheel be 100, and the leaves in the first pinion nine; and let the teeth in the second and third wheels be 120 and 130, and the leaves in the respective pinions be seven and eleven. The velocity of the circumference of the first wheel being expressed by $\frac{9}{100}$, that of the circumference of the second wheel will be $\frac{7}{120}$. This velocity is to that of the circumference of the second pinion, or third wheel, as 120 is to 7; and therefore the velocity of the circumference of the third wheel is $\frac{9 \times 7}{100 \times 120}$. Again, this velocity is to that of the circumference of the last axle as 130 to 11.

This velocity is therefore $\frac{9 \times 7 \times 11}{100 \times 120 \times 130}$; which verifies what we have just advanced.

Wheels are usually made of wood, of iron,

either cast or wrought, of steel, or of brass. The teeth of wheels of metal are generally cut by means of a machine; the wheel is fixed on an axis, which also carries a plate furnished with a variety of circles, divided into different numbers of equal parts, marked by small excavations; these are brought in succession under the point of a spring, which holds the axis firm, while the intervals between the teeth are expeditiously cut out by a revolving saw of steel. The teeth are afterwards finished by a file; and a machine has also been invented for holding and working the file.

We may readily produce a rotatory motion by means of a reciprocating one. Suppose, if it is required to give to the wheel $SVTO$, fig. 8, a rotatory motion about the centre C . In the plane of the wheel attach to a fixed point F as a centre of motion a lever FQ , which may move freely up and down: let a pin be fixed in the wheel as at R ; and let an inflexible bar QR hang upon the pin at R at one end, while the other end is attached to the lever FQ by a stirrup; the motion being quite easy at both ends. Then, while the point Q is raised upwards, the bar pulls upwards the pin R , and so continues to do until the points Q , R , and C , fall in a right line; at that time the effort of the bar to turn the wheel; but the wheel by its anterior rotation has acquired a quantity of motion which will carry it on in the same direction, till, by the downward motion of the extremity Q of the lever, the bar begins to push forward the pin to which it is attached: thus the motion is continued till the points Q , C , and R , are again in a right line, R being now the farthest from Q : in this position the bar has no tendency to move the wheel along; but here the effort of momentum continues the motion as before, till the bar begins to draw the point R upwards. And thus a reciprocating motion of the lever FR gives a complete rotation to the wheel; and the velocity of the circumference of the wheel may be made as rapid as we please, by making the distance CR so much the smaller in comparison of CV . If the lever FQ be below the wheel, the general effect will be the same, but the particular circumstances of the motion will succeed each other in a contrary order. In practice it is common to substitute for the pin at R the handle of a bent winch, as represented by the dotted lines in the figure. It is not absolutely necessary that the lever and wheel should be in the same plane; but deviations from it are not often to be recommended, except in small machinery, such as common spinning wheels worked by the feet, &c. When it is not required to have a complete rotation of the wheel, for every ascent and descent of the lever FQ , we may change the relation of the two motions in any proportion, by the intervention of tooth and pinion work.

Universal joints (invented by Dr. Hooke) are sometimes used to communicate motion obliquely, instead of conical wheels. Fig. 9, represents a single universal joint, which may be employed where the angle does not exceed 40° , and when the shafts are to move with equal velocity. The shafts A and B being both connected with a cross, will move on the rounds at the points C E and D F , and thus, if the shaft A is

turned round, the shaft B will likewise turn with a similar motion in its respective position.

The double universal joint, fig. 10, conveys motion in different directions when the angle is between 50° and 90° . It is at liberty to move on the rounds at the points G, H, I, K, connected with the shaft B; also on the points L, M, N, T, connected with the shaft A; thus the two shafts are so connected that one cannot turn without causing the other to turn likewise. These joints may be constructed by a cross of iron, or with four pins fastened at right angles upon the circumference of a hoop or of a solid ball: they are of great use in cotton mills, where the tumbling shafts are continued to a great distance from the moving power: for, by applying a universal joint, the shafts may be cut into convenient lengths, and so be enabled to overcome a greater resistance.

The nature of friction, as it results from the motion of machinery, must now be noticed.

If a horizontal plane were perfectly smooth, a body would be free to move upon it in any direction, by the least force applied to it. But, however smooth bodies may appear to the eye, yet if you examine their surfaces with a microscope you will discover numberless inequalities; in consequence of which the prominent parts of one body falls into the hollows of another, so as to be locked together; and therefore, in moving them over each other, one of the bodies must be raised up, or its prominencies broken off: this is what is called friction.

Friction is greater in bodies in proportion to their weight or pressure against each other. It does not increase much in proportion to the surface, although it does in some degree. It also increases in proportion to the velocity of the moving bodies.

Wood slides more easily upon the ground, or earth, in wet weather than in dry, and more easily than iron in dry weather, but iron more easily than wood in wet weather. A cubic piece of smooth soft wood, eight pounds in weight, moving upon a smooth plane of soft wood, at the rate of three feet every second, has a friction equal to above two-thirds of its weight. Soft wood upon hard wood has a friction equal to one-sixth part of its weight; and hard wood upon hard wood has a friction equal to about one-eighth part of its weight.

In wood rubbing upon wood, oil, grease, or black-lead, properly applied, makes the friction two-thirds less. Wheel-naves, when greased, have only one-fourth of the friction they would have if wet.

Friction, on copper or lead one-third of the weight; on brass one-sixth; and metals have more friction when they move on metals of the same kind, than when they move on different metals.

The friction of a single lever is very little. The friction of the wheel and axle is in proportion to the weight, velocity, and the diameters of the axle; the smaller the diameter of the axle the less will be the friction.

The friction of pulleys is very great, on average.

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count of the smallness of their diameters, in proportion to that of their axes, because they very often bear against the blocks, and from the wearing of their holes and axles.

In the wedge and screw there is a great deal of friction. Screws with sharp threads have more friction than those with square threads, and endless screws have more than either.

M. Coulomb has an extensive paper on the subject of friction, in vol. 10 Des Memoires des Savans étrangers; where he describes his experiments at considerable length, and deduces from them an elaborate theory. We cannot here enter into the detail of all these experiments, but shall merely state the principal of his results.

M. Coulomb's conclusions are widely different from Mr. Vince's in one important particular; for he asserts that the friction is proportional to the pressure. The mean ratios of friction to pressure, given by Coulomb's experiments for different kinds of wood, are as follows, the pressure being denoted by unity.

Oak against oak	. . .	0.43
Oak against fir	. . .	0.65
Fir against fir	. . .	0.56
Elm against elm	. . .	0.47

The friction being made in the direction of the threads or fibres of the wood. But when the friction is made across the grain of the wood, or so that the direction of the fibres forms a right angle with that of the motion, the friction is less than in the former case, but still in a constant ratio to the pressure; the results being then as below.

Oak against fir	. . .	0.158
Fir against fir	. . .	0.167
Elm against elm	. . .	0.100

These ratios are constant quantities, not depending upon the velocities, except in the case of elm when the pressures are very small, for then the friction increases sensibly with the velocity.

M. Coulomb gives the following general summary.

1. 'The friction of wood sliding over wood (both being dry) opposes, after a sufficient time of quiescence, a resistance proportional to the pressure; that resistance sensibly increasing in the first instant of repose; but after some minutes it usually arrives at its maximum or its limit.

2. 'When wood glides dry over wood with any velocity whatever, the friction is still proportional to the pressure; but its intensity is much less than that which is experienced in detaching the surfaces after some minutes of rest; it has been found, for example, that the force necessary to detach and produce a sliding motion in two surfaces of oak after some minutes of quiescence, is to that necessary to overcome the friction, when the surfaces have obtained any degree of velocity whatever, nearly as nine to two.

3. 'The friction of metals sliding over metals, without oiling, is also proportional to the pressures; but its intensity is the same, whether the surfaces are detached after having been any time in repose, or whether they preserve any uniform velocity whatever.

4. 'Heterogeneous surfaces, such as woods and metals sliding the one over the other, without oiled surfaces, give for their friction results very different from the preceding ones; for the intensity of their friction relatively to the time of repose increases slowly, and does not attain its limit till after four or five days, and sometimes more; instead of which, in metals, the limit is attained in an instant, and in wood in a few minutes: this augmentation is even so slow, that the resistance due to the friction in insensible velocities is almost the same as that which we must surmount in moving or detaching the surfaces after three or four seconds of rest. And this is not all: in wood gliding unoled over wood, and in metals sliding over metals, the velocity has very little influence upon the friction; but here the friction increases very sensibly in proportion as the velocities are augmented; in such manner that the friction increases nearly according to an arithmetical progression.'

The ratio of the friction to the pressure (1) when oak was made to slide over iron, was found, from forty experiments, to be as here stated, when the velocity was almost insensible, .0894, .0773, .0785, and .0786: when the velocity was about a foot per second, .1698, .1722, .1817, and .1573.

'When metals slide upon wood, done over with grease, the friction, says M. Coulomb, appears much softened, and we may produce insensible velocities with degrees of traction less considerable than in all the other species of friction; but, when the velocities have been a little augmented, we have found that the friction increases greatly with respect to the velocity, as was the case when we made unoled metals slide upon wood; and we have, for the reason of the augmentation of velocities and the degree of traction which produced that augmentation, nearly the same law with that we sought to determine in the friction of metals sliding dry upon wood; but, if the greasing be not renewed at each experiment, it coagulates, changes its nature, and the friction successively augments.

'When the surfaces are done over with tallow, the ratio of the friction to the pressure is greater under pressures of about fifty pounds, than under greater pressures.

'With coatings or adhesive coverings of cart-grease, the friction is never less than one-ninth of the pressure. Its resistance depends upon the consistence of the coating, and the friction augments sensibly as this coating is softer. When the surfaces are done over with tallow, and are of great extent, the friction corrupts or changes the nature of the tallow, and augments sensibly as we continue the motion without renewing the coating: yet it is always found less than one-eighth of the pressure. But, when the tallow is dissolved to an oil, this effect is less sensible.'

When one body rolls upon another, it is very obvious that friction produces much less resistance to the motion than when it slides. In this case the parts of the one surface are, in some degree, successively lifted from off the other, and the asperities act in a manner totally different from the case of a sliding motion. One, at least, of the bodies must, in this case, be bounded by

a curved surface, and therefore the surface of contact must necessarily be very small, which is another cause of the diminution of the friction. If the rolling body be cylindrical, the points of contact of the surfaces will form a straight line upon the surface of the cylinder, the surface on which the cylinder rolls being either that of another cylinder having its axis parallel to that of the former, or a plane. But if the rolling body be a sphere, a spheroid, or any similar shape, the surface of contact will be reduced to a single point.

To explain the manner of investigating experimentally the properties of this species of friction, let us suppose two perfectly plane tables, A, B, C, D, fig. 11, placed exactly in the same horizontal plane. On these let a cylinder, E, F, be placed with its axis at right angles to their length. At the middle of the interval between the tables, let a flexible string be passed across the cylinder, having dishes of exactly equal weight suspended at its extremities. By placing equal weights in these dishes, any required pressure may be produced upon the table. If, then, fine sand be poured into either scale until its preponderance just gives motion to the cylinder, this additional weight will be equal to the friction.

In this way the diameter and material of the cylinder, as well as the pressure it exerts against the plane, may be varied at pleasure. In making experiments it would be useful, in each trial, to pour the sand successively in each scale, so just to make the cylinder move in each direction. If the weights which produce the motion differ by a small quantity, a mean between may be taken to represent the friction.

The results of numerous experiments instituted in this way by Coulomb were as follow:—

1. With the same cylinder the friction is proportional to the pressure.
2. With cylinders of the same substance, having different diameters, but equal pressures, the friction is inversely as the diameters.
3. With cylinders of the same substance, differing both in diameter and pressure, the friction is directly as the pressures, and inversely as the diameters; or in a ratio compounded of the direct ratio of the pressures and the inverse ratio of the diameters.

To explain the last two results to those who are not conversant with mathematical phraseology:—Suppose that two cylinders, one of two and the other of five inches diameter, exerted equal pressures on the tables, it would be found that the friction of the two-inch cylinder would be greater than that of the five-inch cylinder, in the proportion of five to two.

Again, suppose that the two-inch cylinder, exerts a pressure of three pounds, and the five inch cylinder a pressure of seven pounds, it will be found that the friction of the two-inch cylinder will be to that of the five-inch cylinder in the proportion of the produce of five and three to the product of two and seven, or as fifteen to fourteen.

It was found that greasing the surfaces does not at all diminish this species of friction.

When a cylinder of mahogany, whose diameter was about three inches, was rolled upon a

plane of oak, the friction was about one-sixteenth of the pressure; and, when it rolled upon a plane of elm, the friction was only $\frac{1}{160}$ th of the pressure.

It is evident, therefore, that between the same substances this species of friction is much less than that of sliding.

The string used in these experiments should be so flexible, that its rigidity or stiffness shall produce no sensible effect upon the results.

If a body, having any round figure, be made to revolve while it is pressed with any force against any surface, and at the same time is prevented from rolling along that surface, a species of friction will be produced different from any which we have yet considered.

To explain this friction, and the experiments by which its properties may be determined, let us suppose a solid cylindrical axis, *AB* (Plate V. fig. 1), inserted in an hollow cylinder, of a diameter, *CB*, somewhat greater than *AB*, so as to permit the hollow cylinder *BC* to turn round it, *AB*. Let the cylinders be placed with their axes horizontal, and let the hollow cylinder be the centre or box of a wheel *DE*. Let an extremely flexible string be passed over the edge of this wheel, in a groove formed to receive it, and let scales *G, H*, be appended to its extremities. In consequence of the form of the axle and hollow cylinder, and the manner in which the weight of the wheel acts, the points of contact of the axle and the cylinder will be in a straight line, formed by the intersection of a vertical plane passing through the axis of the cylinder, with the surface of the cylinder. In fact, if from the point of contact, *B*, a line be conceived to be drawn perpendicular to the plane of the paper, along the inner surface of the cylinder, the axle and the cylinder will touch in that line, and in no other points. It appears, therefore, that if the hollow cylinder be supposed to revolve round the axle, as happens in a carriage wheel, every part of the surface of the hollow cylinder is successively exposed to the effect of friction; while no part of the axle suffers this effect, except the side which passes through the point, *B*, of its section. If, on the contrary, as sometimes happens, the axle revolve within the cylinder, the opposite effects are produced. The entire surface of the axle is successively exposed to the effects of friction, while these effects are confined to one line upon the surface of the hollow cylinder.

By loading the dishes *GH* with any equal weights, the axle may be submitted to any proposed pressure. If, when they are equally loaded, some fine sand be poured into one of the dishes until its weight just gives motion to the wheel, the weight of the sand will be sufficient to determine the quantity of friction.

The preponderating weight is not, however, in this case, the immediate measure of the friction. It is to be considered that the wheel is turned round its centre, *I*; that the friction which resists this motion acts at *B*, and therefore with the leverage *BI*; while the preponderating weight which overcomes the friction acts with the leverage *EI*. Let the friction be *F*, and the preponderating weight be *W*; then by the established properties of the lever we have

$$F : W :: EI : BI$$

$$\therefore F = W \frac{EI}{BI};$$

that is, the friction is equal to the additional weight which produces the motion, multiplied by the radius of the wheel, and divided by the radius of the hollow cylinder which plays upon the axle.

Thus it appears that the friction is greater than the preponderating weight in the proportion of the radius of the wheel to the radius of the cylinder.

As, in the experiments to determine the friction of rolling, so here also each experiment should be tried in both dishes, and the mean of the results taken.

To determine whether the friction be a uniformly retarding force, a weight must be placed in one of the dishes greater than that which is necessary to overcome the friction. This will cause the dish to descend with an accelerated motion, and, by placing a graduated vertical scale near it, the rate of its acceleration may be ascertained. If it be found that the spaces through which it descends, in one, two, or three seconds, &c., are as the numbers 1, 4, 9, &c.; in other words, if the spaces be as the squares of the times, the motion is uniformly accelerated. Hence it may be inferred that the friction is a uniformly retarding force.

By a series of experiments, conducted as we have described, Coulomb found that, like the other modifications of friction, the law of the proportionality of the friction to the pressure obtained also in this case, subject however to the exception before mentioned, that in very great pressures the friction is somewhat less in proportion.

He also found that, as in the friction of sliding, great advantage was gained by greasing the surfaces. In general, fresh tallow diminishes the friction by one-half. It increases as the grease is wasted away. This effect is, however, more slow than in the friction of sliding.

This species of friction is also a uniformly retarding force, and is therefore independent of the velocity.

Like the other species of friction, the quantity of this depends on the quality of the surfaces. If iron revolve in contact with brass, the friction is one-seventh of the pressure. When both surfaces are wood, the friction is one-twelfth of the pressure.

The friction of bodies turning on pivots seems to come within the species we are now considering. This was also examined by Coulomb, and a memoir on the subject was published by him in the *Memoirs of the French Academy* in 1790. A very succinct and clear account of this is given by Dr. Gregory, in the second volume of his *Mechanics*, from which we extract the following particulars:—

‘Bodies which are made to turn upon pivots are usually suspended by means of a cheek, socket, or collar, of very hard matter. The collar has its cavity of a conic form, and terminated at its summit by a little concave segment, whose radius of curvature is very small. The point of the pivot

which is sustained by this collar forms at its summit a little convex surface, whose radius of curvature should be still smaller than that of the extremity of the cheek. Experience evinces that the curvature of the bottom of the socket is irregular, and that the friction of a collar of agate on which a pivot turns is frequently five or six times more considerable than the momentum of friction of a well-polished plane of agate on which the same pivot turns.

These considerations induced M. Coulomb to employ in the course of his experiments, not a cheek or a socket, but a well-polished plane, to support the body on the point of a pivot. To prevent the body from sliding, he took care that its centre of gravity should be very low, with respect to the point of suspension: he then made the body to whirl or spin about its pivot, by impressing upon it a rotatory motion. By means of a seconds watch, he observed exactly the time employed by the body in making the first four or five turns, and he thence deduced easily a mean turn to determine the primitive velocity: after this he counted the number of turns which the body made before it stopped.

Coulomb took a glass bell of forty-eight lines in diameter and sixty lines in height, which weighed five ounces. He placed it on the point of a pivot; and, after giving it successive degrees of velocity about that pivot, he observed very exactly the time that it employed to make the first turn, which gave him for the mean velocity that which answered to the half of such first turn. He then estimated the number of turns made by the bell before it stopped: the results were as below—

‘ 1st Trial. The bell made one turn in 4”, and came to rest after 34 $\frac{1}{10}$ turns.

‘ 1st Trial. One turn in 4”, stops at 34 $\frac{1}{10}$ turns, whence results $\frac{b^2}{x} = \frac{1}{217}$

2nd Trial. 6 $\frac{1}{4}$ ”, . . . 14 $\frac{1}{10}$ $\frac{b^2}{x} = \frac{1}{236}$

3rd Trial. 11”, . . . 4 $\frac{8}{10}$ $\frac{b^2}{x} = \frac{1}{257}$

‘ This experiment, then, shows unequivocally that the quantity $\frac{b^2}{x}$, and consequently the quantity A which expresses the momentum of friction, are constant quantities, whatever be the primitive degree of velocity; and that, consequently, the velocity has not any influence upon the resistance due to the friction of pivots, which from this experiment is necessarily proportional to a function of the pressure.

‘ When this experiment is made in a vacuum, a much less heavy body may be employed, and of any form whatever, and the same result will be obtained.

‘ In other experiments, Coulomb bent a brass wire of nine inches in length; the parallel branches were twenty-four lines distant from one another: the part of the wire curved in the form of a semi-circle which joined the two branches was about three inches long; and the two vertical and parallel branches were also each three inches long. To the extremity of each vertical branch was attached by means of wax a piece of metal; and there was fixed, in like manner, in the middle of the concave part of the wire, to serve for the cheek or bush, a small well-polished plane

‘ 2nd Trial. The bell made one turn in 6 $\frac{1}{4}$ ” and stopped after 14 $\frac{1}{10}$ turns.

‘ 3rd Trial. The bell made one turn in 11” and stopped after 4 $\frac{8}{10}$ turns.

‘ Now if b denote the primitive velocity, x the space described between the commencement and the end of the motion, A the constant mo-

mentum of the retarding force; $\int \frac{\mu r^2}{a}$ the sum of

the products of every particle μ , by the square of its distance r from the axis of rotation, divided by the quantity a , measuring the distance from the axis of rotation to the point whose primitive velocity is b , it is easy to find the following analytical expression for the constant momentum of the vis retardatrix, viz.

$$A = \frac{b^2}{2x} \int \frac{\mu r^2}{a}$$

‘ But, because in the three preceding trials the same bell was employed, the quantity $\int \frac{\mu r^2}{a}$

is the same: $\frac{b^2}{x}$ must therefore be a constant

quantity if A be constant, and reciprocally. But in each trial there was reckoned the time employed by the apparatus in performing an entire revolution. The mean velocity, or the velocity due to the half of each first revolution, will therefore, be measured by the circumference run over. The space described up to the end of the motion will be measured by the number of turns run through from the instant where the mean velocity was determined until the end of the motion. Thus, by computing from the data furnished by the three trials, we may form the following table:

of different substances on which the friction of the point of the pivot was to be determined finally, there was fixed to the summit of a support a little needle of tempered steel, and whose point it was necessary to render more or less fine rounded, or obtuse, according to the nature of the cheeks, and to the pressure which they were to experience. The extremity of the needle first used by Coulomb, appeared, when examined by a microscope, to form a conic angle of 18° or 20°.

The friction of this needle against well-polished planes of granite, agate, rock crystal, glass, and tempered steel respectively, was tried, and the result, taking in each experiment the mean quantity represented by $\frac{b^2}{x}$, (a quantity which was

always found to vary between very narrow limits) gave the momentum of friction of the point of the needle against the planes of granite, agate, &c. respectively, in the ratio of the fractions $\frac{1}{217}$, $\frac{1}{236}$, $\frac{1}{257}$: so that, the momentum of friction of the plane of granite being represented by unity we shall have for the momentum of the friction of rotation relative to the other substances a below:—friction of granite, 1; of agate, 1.214 of rock crystal, 1.313; of glass, 1.777; of steel 2.257.

Coulomb likewise employed himself, during these experiments, in determining the more or less acute form which should be given to the joints of the pivots. To this end he caused to be successively rounded into cones of greater or less acuteness the extremity of a steel needle, that it might thence appear whether the change of figure had any influence upon the friction. Thus he found that, under a certain charge, the joint of the pivot being shaped to 45° , the

quantity $\frac{b^2}{x}$ was, for granite, $\frac{1}{3000}$; agate, $\frac{1}{1100}$; glass, $\frac{1}{700}$; tempered steel, $\frac{1}{5000}$.

Coulomb then gave to the point a more acute form, so that the angle of the cone which terminated it could not be more than 6° or 7° ; and he found, still retaining the same charge or

pressure as before, that the quantity $\frac{b^2}{x}$ was, for agate, $\frac{1}{600}$; glass, $\frac{1}{300}$; tempered steel, $\frac{1}{230}$.

Comparing, from these and other experiments, the momentum of friction of rotation of the point of different pivots against a plane of

agate, he found that the quantity $\frac{b^2}{x}$ which varies as that momentum, was, for a pivot of 45° , $\frac{1}{3700}$; a pivot of 15° , $\frac{1}{1900}$; a pivot of 6° , $\frac{1}{800}$;

After this, Coulomb varied the charge in his experiments, and determined the relative momentum of friction of pivots under different pressures. But, without going further into detail, we may give the following as the principal deductions from the whole.

1. That the friction of pivots is independent of the velocities, being merely as a function of the pressure.

2. That the friction of granite is less than that of glass.

3. That the figure of the point of the pivot, as to acuteness, affects the quantity of friction, in such a manner that when we cause to whirl upon the point of a needle, a body weighing more than five or six drachms, the most advantageous angle for that point appeared to be from 30° to 45° ; under a less pressure, the angle might be progressively diminished, without the friction being perceptibly augmented; it may even without great inconvenience be reduced to 10° or 12° with good steel, when the charge does not exceed 100 grains,—an important consideration in the suspension of light bodies upon cheeks or sockets.

These rules may be useful to the makers of chronometers.

Mr. Anstice, the author of a valuable treatise on wheel-carriages, very familiarly illustrates the advantage of wheels over sledges; it is immediately connected with the subject of friction, and may be illustrated by reference to the following considerations.

1. A sledge, in sliding over a plane, suffers a friction equivalent to the distance through which it moves; but if we apply to it an axle, the circumference of which is six inches, and that of the wheels eighteen feet, it is plain that, moving the carriage eighteen feet over the plane, the wheels will make but one revolution; and as there is no sliding of parts between the plane and

the wheels, but only a mere change of surface, no friction can take place there, the whole being transferred to the nave acting on the axle, so that the only sliding of parts has been betwixt the inside of the nave and axle; which, if they fit one another exactly, is no more than six inches: and hence it is plain that the friction must be reduced in the proportion of 1 to 36. Another advantage is also gained by having the surfaces confined to such a small extent; by which means they may be more easily kept smooth, and fitted to each other. The only inconvenience is the height of the wheel, which must in all cases be added to that of the carriage itself.

It has been a matter of no little consideration, whether the wheels of a carriage ought to be small or large. Mr. Anstice observes, that, in the overcoming of such obstacles as are commonly met with in roads, wheels act as mechanical powers, and therefore the size of the wheel must be regulated upon the principles of these powers. Thus, let the circle OTAGL, fig. 2, represent a wheel of four feet diameter, placed on the level PQ, and opposed in that line by the obstacle O, which is supposed to be 7.03 inches in height; the line in which the carriage is drawn being, CT, parallel to the plane PQ. In this case the effort applied to the carriage is communicated to the nave of the wheel where it touches the axle. This part, therefore, represents the part of the lever to which the power is applied, and is the point C in the figure. As the turning point is that where the wheel touches the obstacle that must represent the fulcrum of the lever; whence that arm of the lever will be represented by CO, which may be supposed a spoke of the wheel; and as the upright spoke CL is the line which bears the whole weight from the axle, and in which it is to be lifted; hence that part of the circumference of the wheel which is between the fulcrum and the upright spoke bearing on it must represent the arm of the lever which is to raise the weight. In this case neither the weight nor the power act at right angles to their respective arms of the lever; so that we must represent their powers by the imaginary lines MO and ON. As the length of OM, therefore, is to that of ON, so is the proportion required to the weight to balance it on the obstacle, when rising over it; and in this case the arms are equal: it is plain that the powers must be so likewise. Every obstacle, therefore, exceeding this height, which is as 7.03 to 48, will require a power acting parallel to the plane greater than the weight drawn; and every obstacle whose height bears a smaller proportion to that of the nave, must be overcome by a smaller power.

Again, let a wheel of four feet diameter, be represented by the circle in fig. 3, and supposed to be moved along the plane PQ, and an obstacle of twelve inches height be placed before it, the real lever will then be represented by the lines LOC; which, being reduced to the imaginary ones MON, shows that the power is greater than the weight. By the same rule, if an obstacle of three inches be placed in the way of a wheel, as in fig. 4, the power required to move the wheel will be considerably less than the weight, though it is plain that the proportion of power must always

be according to the size of the wheel, the height of the obstacle, and the direction in which the carriage is drawn. For instance, if the line of traction in fig. 4 be raised into the direction CS, the power required to move the carriage over it will be to the real weight as the line CO is to the line ON; and in consequence of thus altering the direction we gain as much as the length of the line CO exceeds that of CN.

This view of the manner in which the wheels of carriages act will serve to elucidate the question, whether large or small wheels are preferable for carriages? Let the circle, fig. 5, represent a wheel of two feet diameter, and the obstacle in its way 7.03 inches in height, then will the true lever be represented by the lines COL, to be reduced to the imaginary ones MON. In this case, the power required to draw the carriage must be to its weight as NO is to OM, which is more than double, and thus the advantage of large wheels over small ones is evident. In this, however, as in all other cases where wheels act as mechanical powers, we must remember, that the same doctrine applies to them as to the powers themselves when used in any other manner, viz. that as much as we gain in power we lose in time; and therefore, though a wheel of twice the diameter may be raised over an obstacle of any given height with twice the ease that would be required for one of once the diameter; yet the large wheel would require twice the time to move over it that the small one does.

Hitherto we have considered the carriage as being drawn in a direction parallel, or nearly so, to the plane on which the wheels move, which line is supposed to be horizontal; but the case will be different when we suppose them to move upon an inclined plane; for then, even though the line of traction be parallel to the ascending plane, and though the wheels act as levers, we shall find that the action of the weight will increase with the power gained by the increase of size in the wheels; and, consequently, that the increased size of the latter will be of no farther use than that of diminishing the friction, in the same manner as is done upon horizontal planes.

To illustrate this, suppose the larger circle in fig. 6 to represent a wheel of four feet diameter, and the smaller circle a wheel of only two, both of which are made to ascend the inclined plane LM, by powers applied in the directions GT and ES parallel to the elevation of the plane, which is 45° ; it will then be found, that by describing the lever, as in the former case, though the arm of the lever to which the power is applied be double the length in the large wheel that it is in the small, the other is augmented in the same proportion. Neither will the powers be augmented by varying the direction of the line of traction; for while these are kept parallel to one another, their relative powers must always keep the same proportion to one another. The reason is obvious, viz. that when wheels of any dimension ascend or descend inclined planes of any regular elevation, the fulcrum of the lever contained in the wheels must be determined by that part of the wheel which touches the plane, and which must always be of a proportionate

height both in large and small wheels. It is otherwise, however, with the fulcrum marked out by perpendicular or irregular obstacles upon the plane itself; for large wheels will always have the advantage over small wheels when these are presented, for the reasons already given. Indeed, when the wheel impinges perpendicularly upon an obstacle as high as the line of traction it is plain that it cannot be drawn over it by any power whatever, unless the direction of the latter be altered.

From these considerations, Mr. Anstice draws the following conclusions. 1. That in a carriage placed upon a horizontal plane nothing more is required to produce motion than to overcome the friction which takes place between it and the plane. 2. By the application of wheels to a carriage, the friction is lessened in the proportion of the diameters of the axles and hollow parts of the naves to those of the wheels. 3. In the draught of a carriage without wheels, upon a regular plane ascent, the friction must not only be overcome, but there is a power likewise to be applied sufficient to lift such a proportion of the weight of the carriage as the perpendicular part of the ascending plane bears to that portion of the plane. 4. If wheels of any size be applied to the carriage in such circumstances, they have only the advantage of lessening friction; for though they really act as levers, yet, as each arm of the lever is lengthened in proportion to the increase of size in the wheels, the power can be no farther augmented than as the ascent may be as a mechanical power for raising up the wheel-carriage, &c., to the top. 5. Large wheels have the advantage over small ones in overcoming obstacles, because they act as levers in proportion to their various sizes. 6. The line of traction, or that in the direction of which the carriage is drawn, should always, if possible, be parallel to that in which the plane lies; for, when this is the case, the arm of the lever to which the power is applied will bear the longest proportion possible to the other. This always takes place when the line of traction is perpendicular to that spoke of the wheel which points to the obstacle. As it may not always be possible, however, to alter the direction of the line of traction to this position, it will be most proper to fix upon some medium betwixt that which commonly occurs and that which requires the greatest exertion to overcome the obstacle; that is, betwixt a level line and one rising perpendicular to the spoke of the wheel which points to the obstacle it is likely to meet with. The greatest attention ought to be paid to this at last, that in small wheels, but especially small ones, are liable to sink into the ground over which they pass, and thus produce a constant obstacle to their own progress. The line of traction, it must also be observed, is not an imaginary one drawn from that part of the animal to which the traces or chains are attached to the axle of the wheel, but the real direction of the traces, to whatever part of the carriage they are attached: for the effort will be instantly communicated in the same direction from one part of the carriage to all the rest, by reason of the whole being fastened together and in one piece.

Hitherto we have considered the whole weight of the carriages as bearing perpendicularly against the axles of the wheels; but as this cannot be done in chairs, carts, and other carriages having only two wheels, it will be necessary to have their centres, or transverse lines of gravity, as near the ground as possible. To understand this, it must be premised, that the centre of gravity is that point of any body which, if suspended, will keep all the parts of the body at rest, let the body be placed in any situation we please. Thus the centre of gravity in a wheel or circle is the centre of the circumference, provided the matter of which it is composed be equally ponderous. In a square, whether superficial or solid, the centre of gravity will be a point equally distant from all its sides; so that, if the substance be equally heavy, it will be impossible to turn it into any position in which there will not be as much matter on one side of the centre as upon the other; and in like manner every figure, however irregular, has some part round which, if it be turned, as much matter will always be upon one side as on the other.

If now any body be supported by a transverse line passing, not through the centre of gravity itself, either above or below it, the body can only be kept in equipoise while that line remains directly above or below the point; for if the body is moved forwards, as in two-wheeled carriages moving down hill, a greater part of the weight will be thrown forwards over the line of suspension than what remains behind it; and, consequently, this superfluous part must be borne by the animal which draws it. In ascending any height, just the reverse takes place; for thus a portion of the weight is thrown backwards, and will tend to lift up the animal altogether. The consequence of this is, not only that the creature must proceed with great pain, but that the friction on the nave and axle will be augmented by laying upon them a part of the animal's weight also. If the body be suspended above the centre of gravity, the effect, though the same in the main, will be reversed in the ascent and descent of the hill, as long as the body is firmly attached to the shafts; but should the whole weight be suspended under the axle, independent of the shafts altogether, then it will always, whether ascending, descending, or moving horizontally, have the same effect as if hung directly by it.

A few illustrations of animal power must close the present article, which will be resumed under the head of *MILLWORK*.

A horse draws with the greatest advantage when the line of draught is not level with his breast, but inclines upwards, making a small angle with the horizontal plane.

A horse drawing a weight over a single pulley, can draw 200lbs. for eight hours a day, and walking at the rate of two miles and a half in an hour, which is about three feet and a half in a second; and, if the same horse be made to draw 240lbs., he can work but six hours a day, and cannot go quite so fast. To this may be referred the working of horses in all sorts of mills and water-works, where we ought to know, as near as we can, how much we make every horse draw, that

we may judge of what the effect will be, when proper allowances shall have been made for all the frictions and hindrances, before we can cause any machine to be erected.

When a horse draws in a mill or gin of any kind, great care should be taken that the horse-walk, or circle in which he moves, be large enough in diameter, otherwise the horse cannot exert all his strength; for, in a small circle, the tangent (in which the horse draws) deviates more from the circle in which the horse is obliged to go than in a larger circle. The horse-walk should not be less than forty feet in diameter, when there is room for it. In a walk of nineteen feet diameter it has been calculated that a horse loses two-fifths of his strength.

The worst way of applying the force of a horse is to make him carry or draw up hill; for, if the hill be steep, three men will do more than a horse; each man loaded with 100lbs. will move up faster than a horse that is loaded with 300lbs. This is owing to the position of the parts of a man's body, which are better adapted for climbing than those of a horse.

As a horse, from the structure of his body, can exert most strength in drawing almost horizontally in a straight line, a man exerts the least strength that way; as, for example, if a man weighing 140lbs., walking by a river or canal side, draws along a boat or barge, by means of a rope coming over his shoulder, or otherwise fastened to his body, he cannot draw above twenty-seven pounds, or about $\frac{1}{5}$ th of what a horse can draw in that case. Five men are about equal in strength to one horse, and can with the same ease push round the horizontal beam in a forty feet walk; but three of the same men will push round a beam in a nineteen feet walk, which a horse (otherwise equal to five men) can but draw round.

A man turning a horizontal windlass, by a handle or winch, should not have above thirty pounds weight acting against him, if he is to work ten hours a day, and raise the weight at the rate of three feet and a half in a second. This supposes, however, that the semi-diameter of the windlass is equal to the distance from the centre to the elbow of the handle; for, if there be a mechanical advantage, as there usually is, by having the diameter of the axle on which the rope winds four or five times less than the diameter of the circle described by the hand, then may the weight (taking in also the resistance, on account of the friction and stiffness of the rope) be four or five times greater than thirty pounds; that is, so much as it rises slower than the hand moves.

In this operation, the effect of a man's force varies in every part of the circle described by the handle. The greatest force is, when a man pulls the handle upwards from about the height of his knees; and the least force when (the handle being at top) he thrusts from him horizontally; then again the effect becomes greater as a man lays on his weight to push down the handle; but that action cannot be so great as when he pulls up, because he lays on no more than the whole weight of his body; whereas, in pulling, he can exert his whole strength. Lastly, he has but

small force to pull the handle towards him horizontally, when at its lowest.

Let us suppose a man of moderate strength to weigh 140lbs., he may in the four principal parts of pushing and pulling, in the whole circumference of motion, exert the following forces, viz. in the strongest point a force equal to 160lbs.; in the weakest a force equal to twenty-seven pounds; in the next strong point 130lbs.; and in the last, or second weak point, thirty pounds. Let us add all these forces together, which will make 347; which divide by four, and we shall have 86½lbs. for the weight that a man might lift by a winch, if he could exert his whole force continually, without stopping to take breath; but, as that cannot be, the weight must return and overpower the next weak point, especially when the handle moves slowly, as it must if a man would exert his whole strength all round. Besides, for raising such a weight, we must suppose the man acting always along the tangent of the circle of motion, which does not happen in the operation. Then there must be a sufficient velocity given, that the force applied at the strong points may not be spent before the hand comes to the weak ones, so that it is difficult for a man to continue that irregular motion; and, therefore, when there are no other advantages, the resistance ought to be but thirty pounds. If a fly be added to the windlass when the motion is pretty quick, as about four or five feet in a second, a man may for a little while act with a force of eighty pounds, and work a whole day with a resistance of forty pounds.

If two men work at the end of a roller or windlass, as in drawing up coals or ore from a mine, or water from a well, they may more easily draw up seventy pounds (still supposing the weight and power to have equal velocities) than one man can thirty pounds, provided the elbow of one of the handles be at right angles to

the other; for then one man will act at the strongest point when the other acts at the weakest point of the revolution; by which means the two men will mutually and successively help one another. The common way is to put on the handles opposite to one another, which cannot give the advantage above-mentioned, though there is some little force gained even in that position, because one man, pulling while the other thrusts, works at the strongest of the two weak points, whilst the other works at the weakest, and so helps him a little.

When a man carries a burden upon his back, he exerts a great force very effectually, many muscles at once being employed in that operation; the muscles of his neck, back, and loins, keep his body and head in the proper position to sustain the weight; those of his shoulders and arms help to keep it in its place; and the muscles of his legs and thighs raise the weight of all the body and burden, as the man walks along. In this way of working, three men do much more than a horse, and two often do as much, as may be observed in the daily labor of the London porters. A porter will carry 200lbs., and walk at the rate of three miles an hour; a coal-heaver will carry 250lbs., but then he does not go far with his load. Chairmen do not act with the same muscles as porters; but, as they have straps brought down from their shoulders to the poles of the chair, the muscles of the loins and back are concerned, and likewise the extensors of the legs and thighs; two of them will walk with 300lbs. (that is 150lbs. each) at the rate of four miles an hour.

The last and most effectual way of a man's exerting his strength, is in rowing a boat; he there acts with more muscles than in any other operation; and the weight of his body also assists him.

MECHANICAL, in mathematics, denotes a construction of some problem, by the assistance of instruments, as the duplicature of the cube and quadrature of the circle, in contradistinction to that which is performed in a geometrical manner.

MECHANICAL CURVE is a curve, according to Descartes, which cannot be defined by any algebraic equation; and so contradistinguished from algebraic or geometric curves. Leibnitz and others call these mechanical curves transcendental, and dissent from Descartes, in excluding them from geometry. Leibnitz found a new kind of transcendental equations, whereby these curves are defined: but they do not continue constantly the same in all points of the curve, as algebraic ones do.

MECHAIN (Peter Francis Andrew), a French mathematician and astronomer, was born at Lion in 1744, at which place his father exercised the profession of an architect. He became a correspondent of Lalande at a very early period of his life; and in 1772 was invited to the dépôt of the marine in Paris, and subsequently to Versailles, where he acquired great reputation. He

calculated the orbit of the comet of 1774, and discovered that of 1781. He was admitted in 1782 a member of the academy; and in 1790 discovered his eighth comet. In conjunction with M. Delambre, he undertook, in 1792, the measurement of the degrees of the meridian; and in 1793 completed that of the triangles, between Perpignan and Barcelona. He died in September 1805.

MECHLIN, MECHELN, old Fr. Malines, a considerable town of the Netherlands, an archbishop's see, and the capital of a district in the province of Antwerp. It is divided into two parts by the Dyle; it is well built for its age, and the streets are broad; while the practice of painting the fronts of the houses gives them a fresh and clean appearance. The public square called the place d'armes, and the market place, are worth notice. The most remarkable public building is the cathedral, whose tower, though not finished, is 350 feet in height, and affords a delightful view of the town and environs. The interior is elegant, and contains a number of good paintings. Here are also an arsenal, town-house, Franciscan monastery, and a large Beguinen

house, or asylum for 800 widows and elderly women. The manufactures consist of fine Brabant lace and linen, damask, silk and woollen stuffs, leather, and hats. It has likewise considerable breweries, and a brisk trade in buck-wheat. At high water, vessels of considerable draught reach the town from the Scheldt. Mecklin suffered from the war in 1793 and 1794, but still more from the stagnation of trade under Buonaparte. In 1785 it is said to have had a population of 26,000. At present the number is rather below 20,000. Thirteen miles north-west of Louvain, the same distance south by east of Antwerp, and nearly the same north by east of Brussels.

MECHOACAN, **MECHOACANNA**, in medicine, called also white jalap, white rhubarb, and American scammony, a root, taking its name from a province of Mexico, from whence it is brought in thin transverse slices, like jalap, but larger and whiter. Mechoacan yields scarcely one-sixth part so much resin as jalap does. It is a species of bind-weed.

Mechoacan, introduced about the year 1524, was used as a purgative before jalap, though the latter is now in more general use; yet mechoacan, being the milder and more gentle of the two, is sometimes on that account preferable. Boulduc found that it contains twelve times as much salt as resin; but neither the saline nor resinous extract purge so freely as the substance, even though taken in larger doses. In the choice of mechoacan, prefer those pieces which are the brownest within, and whose substance is the closest, and most compact.

MECKEL (John Frederick), a celebrated anatomist, was born at Wetzlar in 1714, and studied at Gottingen and Berlin. He returned to the former university to receive his degree of M. D., when he was appointed demonstrator of the school of female accoucheurs; and in 1753 professor of midwifery. His reputation attracted a multitude of foreigners to his lectures from Strasburg and even from Paris. He quitted the chair in 1755, and died September 18th, 1744, surgeon to the king of Prussia. He published, *De quinto pare Cerebri*, 4to.; *Diss. epist. de Vasis Lymphaticis, glandulisque conglobatis*, 1757, 4to., and other works.

MECKEL (Philip Frederick Theodore), son of the above, was brought up to his father's profession at Gottingen and Strasburg. Having been professor of anatomy and surgery at Halle and at Strasburg, he was in 1795 invited by Paul I. to Petersburg, and nominated physician to the empress, inspector of the hospitals of that city, and privy-councillor. He died March 18th, 1803. He was the author of numerous anatomical dissertations; and a translation of Haller's Elements.

MECKLENBURG, a county on the south side of Virginia, bounded north by Lunenburg county, east by Brunswick, south by North Carolina, and west by Halifax and Charlotte counties. Population 18,443. Slaves 10,264. Chief town Boydton.

MECKLENBURG, a county in the south-west part of New Carolina. Population 14,272. Slaves 3494. Chief town, Charlotte.

MECKLENBURG-SCHWERIN, a grand duchy of Germany, bordering on the Baltic and

Holstein, is bounded on the east and south by Mecklenburg-Strelitz and the kingdom of Prussia; and on the west by the southern extremity of Denmark. The whole area is computed at 4800 English square miles, and its population at 358,000 individuals. Mecklenburg has an agreeable variety of gentle eminences and numerous lakes, but is wholly destitute of mountains. There are also several marshy districts, and sandy tracts, scarcely susceptible of cultivation. Here are likewise some large forests. The climate is cold and moist, but has lately been improved by the progress of cultivation. The forests have been by the same means reduced, and in several places good roads are opened. The inhabitants are principally employed in agriculture: their chief exports are grain, wool, sheep, and a large and strong breed of horses.

Schwerin, the capital, contains the usual residence of the grand duke. It is situated on the western border of a lake, which almost surrounds it; the ducal palace standing on an island, and communicating with the town by a draw-bridge. Gustrow, the former residence of the dukes of Mecklenburg-Gustrow, is situated on the river Nebel, and is surrounded by a wall with six gates. It is noted for its breweries and distilleries. Rosstock, a handsome town on the river on the Warne, about ten miles from the Baltic, engrosses most of the commerce of the duchy, exporting about 150,000 quarters of grain annually. Large vessels load and unload at the mouth of the river. Wismar, another chief port of Mecklenburg, stands on a bay of the Baltic. It has one of the best harbours on the southern shores of that sea.

The exports of this duchy consist of wheat, rye, barley, oats, peas, and malt. The imports of coffee, rum, sugar, tobacco, and salt, which is an article in great request. The religion is chiefly Lutheran. The government is hereditary; the army is composed of about 4000 men, and the annual revenue amounts to nearly £175,000. It has no manufactures of consequence.

MECKLENBURG-STRELITZ, a grand duchy of Germany, to the south-east of Mecklenburg-Schwerin. It is a flat country, full of lakes, marshes, and sandy plains: which often render the air very damp and cold. The whole of this duchy occupies about 875 square miles, and has 72,000 inhabitants. This is more in proportion than Mecklenburg-Schwerin; but the productions, the employment of the people, the state of society, and the profession of religion, are the same in both. Strelitz, the chief town, is situated in a marshy district, at the south-east of the duchy, and contains, therefore, the duke's residence, the public offices, and the houses of the principal nobility. None of the other towns deserve notice. The amount of the army, belonging to this dukedom, is not more than 700, and the annual revenue £70,000.

MECON, a considerable river of Asia, which rises in the mountains of Thibet, and has a course of about 200 miles in Cambodia. It falls into the sea by three mouths, after having been joined by a canal with the Manam, or river of Siam. The mouths assume the names of Saigong, the Japanese River, and Onsequeame or Inconvenient.

MECONIUM, *n. s.* Gr. *μυκωνιον*. Expressed juice of poppy; also the first excrement of children.

Infants new-born have a *meconium*, or sort of dark-coloured excrement in the bowels. *Arbuthnot.*

MEDAL, *n. s.* } Fr. *medaille*, *medaillon*;
MEDAL'LIC, *adj.* } Teut. *medal*; Ital. *medaglia*;
MEDAL'LION, *n. s.* } *lia*; Lat. *metallum*. See
MED'ALLIST. } below. An ancient coin, or historic token; a piece stamped in honor of some remarkable performance: medallic is of the nature of, or pertaining to, medals: medallions, medals, not coins; see the extract from Addison: medallist, an amateur or dealer in medals.

The Roman *medals* were their current money: when an action deserved to be recorded on a coin it was stamped, and issued out of the mint. *Addison.*

You will never, with all your *medallic* eloquence, persuade Eugenius that it is better to have a pocketful of Otho's than of Jacobus's. *Id.*

Medallions, in respect of the other coins, were the same as modern *medals* in respect of modern money. *Id.*

As a *medallist*, you are not to look upon a cabinet of *medals* as a treasure of money, but of knowledge. *Id. On Medals.*

The same enthusiasm that dignifies a butterfly or a *medal*, to the virtuoso and the antiquary, may convert controversy into quixotism. *Percival.*

MEDAL denotes a piece of metal in the form of coin, such as was either current money among the ancients, or struck on any particular occasion, to preserve to posterity the portrait of some great person, or the memory of some illustrious action. Scaliger derives the word from the Arabic *methalia*; a sort of coin with a human head upon it. But the opinion of Vossius is more generally received; viz. that it comes from *metallum*, metal; of which substance medals are commonly made.

MEDALS. Under this title several encyclopædists, both Scotch and English, have thought proper to give a scientific dissertation on the utility of medals in history and other sciences, their preservation and value. We prefer that of **NUMISMATICS**, which will conveniently embrace the consideration of ancient coins also, and to that article refer the reader.

MED'DLE, *v. n. & v. a.* } Belg. *middelen*;
MED'DLER, *n. s.* } Dan. and Swed.

MED'DLESOME, *adj.* } *meddle*, *meddela*;
Goth. *medul*, a medium. To interfere; interpose, or intervene; to interfere officiously; have to do, followed by *with*: as a verb active, to mingle; mix (obsolete): *meddlesome* is always used in a bad or reproachful sense.

Why should'st thou *meddle* to thy hurt?

2 *Kings* xiv. 10.

It is an honour for a man to cease from strife: but every fool will be *meddling*. *Prov.* xx. 8.

He that had well ycon'd his lere,

Thus *meddled* his talk with many a teare.

Spenser.

A *meddled* state of the orders of the gospel, and ceremonies of popery, is not the best way to banish popery. *Hooker.*

For my part, I'll not *meddle* nor make any farther. *Shakespeare.*

Do not drive away such as bring the information, as *meddlers*, but accept of them in good part.

Bacon.

With the power of it upon the spirits of men we will only *meddle*. *Id. Natural History.*

There is much deceit in probabilities; especially when we *meddle* with spiritual matters. *Bp. Hall.*

How to distinguish between *meddling* innocently, from being blameably *meddlesome*, is that hard task which I am to undertake, but cannot hope thoroughly to perform. *Barrow.*

I have thus far been an upright judge, not *meddling* with the design or disposition. *Dryden.*

This may be applied to those that assume to themselves the merits of other men's services, *meddlers*, boasters, and impertinents. *L'Estrange.*

The civil lawyers have pretended to determine concerning the succession of princes; but, by our author's principles, have *meddled* in a matter that belongs not to them. *Locke.*

This *meddling* priest longs to be found a fool.

Rove.

What hast thou to do to *meddle* with the affairs of my family? to dispose of my estate, old boy?

Arbuthnot.

Let me shake off the intrusive cares of day,

And lay the *meddling* senses all aside. *Thomson.*

MEDE (Joseph), a learned divine, born at Borden, in Essex, in 1586, and educated at Cambridge, where he took the degree of M.A. in 1610. His first appearance as a writer was an address to Dr. Andrews, then bishop of Ely, in a Latin tract *De Sanctitate Relativa*, which was highly approved of by that prelate. He was not chosen fellow of his college till after he had graduated, and even then not without the assistance of his friend, bishop Andrews; for Dr. Cary, then master of the college, suspected that 'he looked too much towards Geneva.' Being made fellow, he became an eminent and faithful tutor. He applied himself to the study of history and antiquities; particularly those of the Chaldeans, Egyptians, and other ancient nations; tracing them as far as he could in their oriental figurative expressions, and hieroglyphics. He was also a curious and laborious searcher into the antiquities relating to the Jewish, Christian, and Mahometan religions. In 1620 he refused the provostship of Trinity College, Dublin, into which he had been elected at the recommendation of archbishop Usher, his particular friend; as he did also a second time, in 1630. Though he had nothing but his fellowship, and a college lecture, his charity was great, and he devoted the tenth of his small income to charitable uses. He died in 1638, in his fifty-second year, having spent about two-thirds of his time in college. His works make one volume folio; his *Comment on the Apocalypse* is much esteemed.

MEDEA, in fabulous history, a celebrated sorceress, daughter of Æetes, king of Colchis. Her mother's name, according to the more received opinion of Hesiod and Hyginus, was Idyia. She was the niece of Circe. When Jason came to Colchis in quest of the golden fleece, Medea became enamoured of him, and to her well-directed labors the Argonauts owed their preservation. Medea had an interview with her lover in the temple of Hecate; where they swore eternal fidelity. When Jason had overcome all difficulties, Medea embarked with the conquerors for Greece. To stop the pursuit of her father

she tore to pieces her brother Absyrtus, and left his mangled limbs in the way through which Æetes was to pass. When Jason reached Iolchos, his native country, the return and victories of the Argonauts were celebrated with universal rejoicings; but Æson, the father of Jason, was unable to assist at the solemnity on account of his age. Medea removed Æson's weakness, and by drawing away the blood from his veins, and filling them again with the juice of certain herbs, she restored him to the vigor of youth. This sudden change of Æson astonished the inhabitants of Iolchos; and the daughters of Pelias also wished to see their father restored to the vigor of youth. Medea, to revenge the injuries which her husband's family had suffered from Pelias, increased their curiosity; and led them to murder their father as preparatory to his rejuvenescence, which she afterwards refused to accomplish. This action incensed the people of Iolchos; and Medea with her husband fled to Corinth to avoid their resentment. Here they lived ten years with mutual attachment, when the love of Jason for Glauce, the king's daughter, interrupted their harmony, and Medea was divorced. Medea revenged the infidelity of Jason, by causing the death of Glauce, and the destruction of her family. She also killed two of her children in their father's presence; and, when Jason attempted to punish her barbarity, she fled through the air in a chariot drawn by winged dragons. From Corinth she came to Athens, wher, after she had undergone the purification of her murder, she married king Ægeus, by whom she had a son called Medus. Soon after, when Theseus wished to make himself known to his father, Medea, jealous of his fame, and fearful of his power, attempted to poison him at a feast. Her attempts, however, failed of success, and the sight of the sword which Theseus wore by his side convinced Ægeus that the stranger, against whose life he had conspired, was his own son. The father and the daughter were reconciled; and Medea, to avoid punishment, mounted her fiery chariot, and flew to Colchis; where she was reconciled to Jason, and where she died. After death she married Achilles in the Elysiac fields, according to Simocides. Ælian ascribes the murder of Memnon and Pherus, the youngest of Jason's children by Medea, to the Corinthians, who assassinated them in the temple of Juno Acræa, for which they were punished by a pestilence. They afterwards engaged the poet Euripides for five talents to write a tragedy, which represented Medea as the cruel assassin of her own children.

MEDDELA, a mountainous province of the north of Sweden, between the Gulf of Bothnia and Janitland. It is 100 miles in length, and fifty in breadth; but has only 32,000 inhabitants. It is in general woody, but has some fertile valleys and fine lakes, and plenty of pasture. The woods abound in game, and the lakes and rivers in fish. Sufficient corn is raised for the consumption; and timber, flax, hemp, butter, poultry, and dried fish, are exported. Sundswall is the only port.

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good harbour on the Zuyder Zee. Population 2000. It is twenty-eight miles north by east of Amsterdam.

MEDEOLA, climbing African asparagus, in botany, a genus of the hexandria order, and trigynia class of plants; natural order eleventh, samentaceæ: CAL. none: COR. sexpartite and revolved: the BERRY trispermous. Its characters are these: the flower has no empalement; it has six oblong oval petals, and six awl-shaped stamina, terminated by incumbent summits, and three-horned germina terminating the style; the germina afterwards turn to a roundish trifid berry with three cells, each containing one heart-shaped seed.

MEDFORD, a post town of Middlesex county, Massachusetts, on Mystic River, four miles north of Boston. It is a pleasant handsome town, and contains a boy's grammar-school, and four distilleries. It has a considerable ship-building business, and manufactures great quantities of bricks, leather, &c. The river is navigable for vessels of considerable size to this place, where it meets the Middlesex Canal.

MEDIA, the ancient seat of a powerful empire, was bounded, according to Ptolemy, on the north by part of the Caspian Sea; south by Persia, Susiana, and Assyria; east by Parthia and Hyrcania; and west by Armenia Major. It was anciently divided into several provinces, viz. Tropatene, Charomithrene, Darites, Marciane, Amariæ, and Syro-Media. By a later division, however, all these were reduced to two; the one called Media Magna, the other Media Atropatia, or simply Atropatene. Media Magna was bounded by Persia, Parthia, Hyrcania, the Hyrcanian Sea, and Atropatene, and contained the cities of Ecbatan, Laodicea, Apamea, Raga, Rageia, or Ragea, &c. Atropatene lay between the Caspian Mountains and the Caspian Sea. This country originally took its name from Madai, the third son of Japhet; as is plain from Scripture, where the Medes are constantly called Madai. Some derive their name from Medus, the son of Jason and Medea; others from a city called Media. Sextus Rufus tells that in his time it was called Medena, and from others we learn that it was also called Aria. The most authentic history of the Medes is as follows.—They lived in subjection to the Assyrians till the reign of Sennacherib, when they threw off the yoke, and lived for some time in a state of anarchy. But about A. A. C. 699 Dejoces, who had excited a revolt from Sennacherib, being chosen king, united the scattered tribes of the Medes, and, having applied himself to the civilisation of his barbarous subjects, left the throne to his son Phraortes, after a reign of fifty-three years. Phraortes, who was of a warlike and enterprising disposition, subdued almost all Upper Asia, lying between Mount Taurus and the River Halys, which runs through Cappadocia into the Euxine Sea. Flated with this good success he invaded Assyria, which was greatly weakened by the revolt of many nations which had followed the example of the Medes. Nebuchadonosor, or Chyniladan, however, the reigning prince, having assembled what forces he could, engaged Phraortes, defeated, took him prisoner,

and put him to death; after which, entering Media, he laid waste the country, took the metropolis Ecbatan itself, and levelled it with the ground. On the death of Phraortes his son Cyaxares I. was placed on the throne. He was no less valiant and enterprising than his father, and was more successful against the Assyrians. With the remains of that army which had been defeated under his father, he not only drove the conquerors out of Media, but obliged Chynildan to shut himself up in Nineveh. To this place he immediately laid siege; but was obliged to abandon the enterprise on account of an irruption of the Scythians into his own country. Cyaxares engaged these new enemies with great resolution; but was utterly defeated; and the conquerors over-ran not only all Media, but the greater part of Upper Asia, extending their conquests into Syria, and as far as the confines of Egypt. They continued masters of all this vast tract of country for twenty-eight years, till at last Media was delivered from their yoke by a general massacre at the instigation of Cyaxares. After this the Medes repossessed themselves of the territories they had lost; and once more extended their frontiers to the Halys, their ancient boundary on the west. After this they engaged in a war with the Lydians; and on the conclusion of it Cyaxares, having entered into a strict alliance with Nebuchadnezzar king of Babylon, returned in conjunction with the Babylonians before Nineveh; which they took and levelled with the ground, putting most of the inhabitants to the sword. After this victory the Babylonian and Median empires seem to have continued in alliance, till a little before the death of Nebuchadnezzar, when a war ensued, which was not extinguished but by the dissolution of the Babylonian empire. The Medes, under Astyages, the son of Cyaxares I., withstood the power of the Babylonian monarch; and, under Cyrus and Cyaxares II., utterly destroyed their empire by the taking of BABYLON. See that article. After the death of Cyaxares the kingdom fell to Cyrus, by whom the seat of the empire was transferred to PERSIA. See that article.

MEDIASTINE, *n. s.* Fr. *mediastine*; Lat. *mediastinum*. The fimbriated body about which the guts are convolved.

None of the membranes which invest the inside of the breast but may be the seat of this disease, the *mediastine* as well as the pleura. *Arbuthnot on Diet.*

MEDIASTINE, **MEDIASTINUM**, in anatomy, a double membrane, formed by a duplicature of the pleura; serving to divide the thorax and the lungs into two parts, and to sustain the viscera, and prevent their falling from one side of the thorax to the other. See **ANATOMY**.

MEDIATE, *v. n., v. a. & adj.* From Lat. *medius*. To interpose; intercede; be between two: to effect by mediation: mediate as an adjective is, middle; interposed; intervened; and, in an obsolete sense, acting as means: mediate, by a second-

ary cause: *mediatrix* is a female mediator; Mediator, a scriptural title of the Lord Jesus Christ. The sense of the other compounds follows that of mediate.

There is one God and one Mediator between God and men, the man Christ Jesus. 1 Tim. ii. 5.

Noble offices thou may'st effect

Of mediation, after I am dead,

Between his greatness and thy other brethren.

Shakspeare.

God worketh all things amongst us *mediately* by secondary means; the which means of our safety being shipping and sea-forces, are to be esteemed as his gifts, and then only available and beneficial when he vouchsafeth his grace to use them aright.

Raleigh's Essays.

The king sought unto them to compose those troubles between him and his subjects; they accordingly interposed their *mediation* in a round and princely manner.

Bacon.

You had found by experience the trouble of all men's confluence, and for all matters to yourself, as a mediator between them and their sovereign.

Id. Advice to Villiers.

The most important care of a new king, was his marriage for *mediate* establishment of the royal line.

Watton.

As many sacrifices, so many mediators, plainly seem to put Christ out of office.

Bp. Hall.

Pestilent contagion is propagated immediately by conversing with infected persons, and *mediately* by pestilent seminaries propagated through the air.

Harvey on Consumptions.

By being crowded, they exclude all other bodies that before *mediated* between the parts of their body.

Digby.

The earl made many professions of his desire to interpose, and *mediate* a good peace between the nations.

Clarendon.

Man's friend, his mediator, has designed,

Both ransom and redeemer voluntary. *Milton.*

I possess chemists and corpuscularians of advantages by the confederacy I am *mediating* between them.

Boyle.

They styled a double step, the space from the elevation of one foot to the same foot set down again, *mediated* by a step of the other foot, a pace, equal to five feet.

Holder.

It is against the sense of the law to make saints or angels to be mediators between God and them.

Sittingfleet.

The passions have their residence in the sensitive appetite: for inasmuch as man is a compound of flesh as well as spirit, the soul, during its abode in the body, does all things by the *mediation* of these passions.

South's Sermons.

Anxious we hover in a *mediate* state,

Between infinity and nothing.

Prior.

All other effects of Christ's *mediatorial* office are accounted for from the truth of his resurrection.

Fiddes's Sermons.

The corruption of manners in the world, we shall find owing to some *mediating* schemes that offer to comprehend the different interests of sin and religion.

Rogers.

A mediator is considered two ways, by nature or by office, as the fathers distinguish. He is a *mediator* by nature, as partaking of both natures divine and human; and *mediator* by office, as transacting matters between God and man.

Waterland.

It is utterly inconceivable that inanimate brute matter, without the *mediation* of some immaterial being, should operate upon other matter without mutual contact.

Bentley.

MEDICI (John or Gioranne de), a wealthy merchant of Venice, who died in 1428, having first given that memorable charge to his sons, to which Mr. Roscoe attributes all the future greatness of this remarkable family. He never appears to have solicited office, but was honored with several distinguished appointments. 'I feel,' said he, on the occasion alluded to, 'that I have lived the time prescribed me. I die content; leaving you, my sons, in affluence and health, and in such a station that, while you follow my example, you may live in your native place honored and respected. Nothing affords me more pleasure than the reflection that my conduct has not given offence to any one; but that, on the contrary, I have endeavoured to serve all persons to the best of my abilities. I advise you to do the same. With respect to the honors of the state, if you would live with security, accept only such as are bestowed on you by the laws, and the favor of your fellow-citizens; for it is the exercise of that power which is obtained by violence, and not of that which is voluntarily conferred, that occasions hatred and violence.'

MEDICI (Cosmo de), a citizen and merchant of Florence, was the eldest son of the above, and born in that city in 1389. At the period of his father's death he was already well established, and of the highest consideration among the merchants of his native city. He had also taken a considerable share in its public affairs. In 1414, when Balthasar Cossa (John XXIII.) had been elected pope, and was summoned to attend the council of Constance, he chose Cosmo de Medici, among other men of eminence, for one of his associates. The authority enjoyed at Florence by this distinguished individual and his family, at this time, consisted rather in tacit influence and acquiescence than in any prescribed form of office or appointment. Their urbanity and kindness to the superior ranks of the citizens, and their unremitting attention to the interests and wants of the lower classes, acquired them those numerous and zealous partisans, whom they considered the best pledges for the continuance of their power. The government was a republic, guided by a council of ten and a chief executive officer, called the Gonfaloniere, or standard bearer chosen every two months. Such was the influence of the Medici, that they generally assumed to themselves these first offices of the state, or nominated such persons as they esteemed fit; always, however, consulting the popular opinion. At length the bad success of the war against Lucca gave occasion to the rise of a party, headed by Rinaldo de' Albizzi, which, in 1433, after filling the magistracy with their own creatures, ventured to seize the person of Cosmo, and to proceed against him judicially, alleging that his influence was dangerous to the state. He remained in prison several days, in constant apprehension of violence, or that his life might be attempted by poison; until several princes and states of Italy interposed on his behalf; and, in conclusion, he and several members of his family were banished to Padua for ten years. By the Venetian government he was received with marked respect, and took up his abode in the capital of that state. Within a year Rinaldo himself was obliged to quit Florence, and Cosmo, being recalled, returned

amidst the loud acclamations of all ranks. The gonfaloniere who had pronounced his sentence, with a few others of that party, were put to death. The choice of magistrates was now carefully confined to the partisans of the Medici, and alliances formed with other powers for the purpose of supporting and perpetuating their system of government. From this period the life of Cosmo was an almost uninterrupted series of prosperity. The tranquillity of the republic, and the satisfaction which he experienced in the esteem and confidence of his fellow-citizens, enabled him to indulge his propensity to the promotion of science, and the patronage and encouragement of all learned men. He assembled at Florence some of the most celebrated men of the age, and established an academy expressly for the elucidation of the Platonic philosophy, at the head of which he placed the famous Marsilio Ficino. He collected from all parts manuscripts of the Greek, Latin, and oriental languages, the foundation of the Laurentian library, and gave every encouragement to the arts of painting, sculpture, and architecture. He also collected statues, vases, gems, and medals, making all his treasures accessible to the curious and the public.

In the latter period of his life Cosmo withdrew, as much as possible, from the burden of public affairs to his seats at Careggi and Caffaggiolo, where he cultivated his farms with success; but his happiest hours were devoted to letters and philosophy, and the society to which they inclined him. He was usually accompanied in these retreats, by Ficino, to whom, after having been his protector, he became a pupil in the study of the Platonic philosophy. His piety he displayed, according to the fashion of the age, by the munificent endowment of numerous religious foundations; and even erected a hospital at Jerusalem for the relief of distressed pilgrims. The spirit of his government was moderation; and he never assumed a state beyond that of a citizen. Being apprehensive that ambitious alliances would give rise to suspicions that he entertained designs inimical to the freedom of Florence, he chose to increase his interest among the citizens by the marriage of his children into the most distinguished families of the republic. Piero, his eldest son, was married to Lucretia Tornabuoni, by whom he had two sons, Lorenzo and Giuliano. His immense wealth was not the object of envy, because he chiefly expended it upon the public; and there was scarcely a citizen whom he had not some time obliged by loans of money, never asking the repayment.

Parties were, however, a second time formed in Florence hostile to the predominance of this family. But Cosmo's popularity was not to be shaken; and, while he withdrew from public business, he retained the influence of his virtues. He had lost his second son, Giovanni, on whom he had placed his chief expectations; his eldest Piero, laboring under various bodily infirmities; so that he apprehended that at his own death the splendor of the Medici would cease. A short time before his death, as his attendants were carrying him through the apartments of his palace, he exclaimed 'This is too large a house for so small a family.' His latter days were, how-

ever, cheered by his fellow-citizens, in a public decree, conferring upon him the noble title of Father of his Country, which was inscribed on his tomb. He died, in the prospect of a happier state, we are told, August 1st, 1464, at the age of seventy-five years, deeply lamented by a vast majority of his countrymen.

MEDICI (Lorenzo de), called The Magnificent, was the grandson of Cosmo, and son of Piero de Medici, by Lucretia Tornabuoni. He was born January 1st, 1448, and was about sixteen years of age when Cosmo died. In early life he exhibited proofs of a superior mind, which was cultivated by a very careful education, under the direction of his mother, one of the most accomplished women of her age. That turn of mind which afterwards gave him a peculiar claim to the title of 'Magnificent' was also apparent in his youth. Having received, as a present, a horse from Sicily, he sent the donor, in return, a gift of far greater value; and, on being reproved for his profuseness, he remarked that there was nothing so glorious as to overcome others in generosity. He was not less addicted to active sports and laborious exercises than to the studies of the closet, and to polite literature. Tall in stature, and robust in form, Lorenzo had in his person a great appearance of strength; but from his birth his sight was weak; his voice harsh; and he was totally deprived of the sense of smell. At the death of his distinguished grandfather it was thought proper immediately to initiate him into political life. He was accordingly sent to the principal courts of Italy for the purpose of forming a personal connexion with their rulers, and to strengthen the interest of his family. In an interview with Ferdinand of Naples he impressed him with a high idea of his early wisdom; and the prudence and vigor of his conduct at home were instrumental in fully restoring the influence and superiority of his house. In 1469 he married Clarice, a daughter of the family of Orsini, and in the same year Piero de Medici, his father, died. Lorenzo immediately, at the request of the citizens of Florence, took upon himself that post of head of the republic which Cosmo and Piero had successively occupied. On the accession of Sixtus IV. to the papacy, Lorenzo, with other eminent citizens, were deputed to congratulate him on the part of the republic. He was invested, on this occasion, with the office of treasurer of the holy see. One of the first public occurrences after this was a revolt of the inhabitants of Volterra: by the recommendation of Lorenzo, force was adopted, which ended in the sack of that city, a circumstance he is said to have much regretted. In 1472 he was the means of re-establishing the academy of Pisa, and took up his residence there for a considerable time, contributing to it a large sum from his private fortune. Attached to the Platonic philosophy, he took an active part in the establishment of an academy for its promotion, and instituted an annual festival in honor of the memory of Plato. While thus advancing, in the career of fame and prosperity, a tragical incident was very near depriving him of life; i.e. the conspiracy of the Pazzi, a numerous and distinguished family in Florence. The instigators of this foul attempt, of which the object was the as-

sassination of Lorenzo and his brother, were pope Sixtus IV., and his nephew cardinal Riario: the archbishop of Pisa being their principal agent. Giacompo de Pazzi, the head of that family, gave also his assistance. The atrocious plan was to assassinate the two brothers, while they were partaking of the hospitality of Lorenzo; but the absence of Giuliano, through indisposition, obliged the conspirators to postpone the event. On deliberation it was resolved that the assassination should take place on the following Sunday, at the elevation of the host, in the church.

The murder of Giuliano was committed to Francesco de Pazzi and Bernardo Bandini; that of Lorenzo to the sole hand of Montesicco. This office he had undertaken while he understood that it was to be executed in a private dwelling, but he shrunk from the idea of polluting a church with such a crime. Two ecclesiastics were therefore selected for the commission of the deed! In the month of April, 1478, the young cardinal Riario, apostolic legate, a guest in the palace of Lorenzo, proceeded to the church of the Reharata, since called 'Santa Maria del Fiore,' where the victims were present. The conspirators took their stations, and waited with impatience for the signal, when the bell rang—the priest raised the consecrated wafer—the people bowed before it, and at the same instant Bandini plunged a dagger into the breast of Giuliano. On receiving the wound, which was fatal, he took a few steps and fell, when de Pazzi rushed upon him with incredible fury, and stabbed him in different parts of his body. Such was the violence of his rage that he wounded himself in the thigh. The priests who had undertaken the assassination of Lorenzo were not equally successful: they inflicted only a slight wound, which roused rather than disabled him. He instantly threw off his cloak, and, holding it up as a shield, with his right hand drew his sword, and repelled the assailants. Bandini came up with his dagger streaming with the blood of Giuliano, but was instantly struck down by a servant. Lorenzo's friends in the mean time assembled round him, and conducted him home. A simultaneous attack on the palace of government, by other conspirators, failed of success, and the people attached to the Medici, collecting in crowds, put to death or apprehended the assassins. Signal and instant justice was inflicted on them. The archbishop of Pisa was hanged out of the palace window in his robes, and Giacompo de Pazzi, with one of his nephews, shared a like fate. Lorenzo endeavoured to restrain the fury of the populace, and induce them to commit to the magistrates the punishment of the guilty. In the mean time the pope, inflamed almost to madness by the defeat of his scheme, excommunicated Lorenzo and the magistrates, laid an interdict upon the whole Florentine territory, and, forming a league with the king of Naples, prepared to invade it. Hostilities began, and were carried on through two campaigns. At the close of 1479 Lorenzo took the bold resolution of paying a visit to one of these enemies, the king of Naples, and, without any previous security, trusted his liberty and life in his hands. The monarch was struck with this heroic act,

which ended in a treaty of mutual defence and friendship. Sixtus, however, persevered in war, till a descent upon the coast of Italy by Mahomet II.

In the month of May, 1481, another attempt was made to assassinate Lorenzo in a church, but the plot was happily discovered, and the agents were seized and executed. From this time he generally appeared in public, surrounded with a guard of friends. But the death of Sixtus IV. freed him from an adversary who never ceased to bear him ill-will, and he was able to secure himself a friend in Innocent VIII. his successor. His political conduct, as head of the Florentine republic, was chiefly directed to the preservation of an equilibrium of power between the states of Italy.

Lorenzo also was distinguished both for the encouragement of literature and the arts, and his proficiency in Italian poetry. His works are remarkable for vigor of imagination, accuracy of judgment, and an elegance of style, which entitle him, almost exclusively, to the appellation of the 'restorer of Italian literature.' Some of his pieces of the lighter kind became extremely popular; and his regard to literature in general was testified by the attention which he paid to the Laurentinian library, and especially to the enlargement of the collection of antiquities: for this purpose he employed the services of learned men in different parts of Italy, and particularly Angelo Politiano. 'I wish,' said he to him, 'that the diligence of Pico and yourself would afford me such opportunities of purchasing books, that I should be obliged even to pledge my furniture to possess them.' Two journeys into the east by Giovanni Lascar produced a great number of rare works. On his return from his second expedition, he brought with him 200 MSS., many of which he had procured from a monastery at Mount Athos; but this treasure did not arrive till after the death of Lorenzo. On the discovery of printing, Lorenzo was immediately solicitous to avail himself of its advantages in procuring editions of the best works of antiquity; and, when the capture of Constantinople caused the dispersion of many learned Greeks, he took advantage of the circumstance to promote the study of their language in Italy. 'Succeeding scholars,' observes Mr. Roscoe, 'have been profuse of their acknowledgments to their great patron, who first formed that establishment, from which, to use their own classical figure, as from the Trojan horse, so many illustrious champions have sprung, and by means of which the knowledge of the Greek tongue was extended, not only through all Italy, but through France, Spain, Germany, and England; from all which countries numerous pupils attended at Florence, who diffused the learning they had there acquired throughout the rest of Europe.'

Lorenzo appropriated his gardens in Florence to the establishment of an academy for the antique, which he furnished with a profusion of statues, busts, and other relics of art. The attention of the highest ranks was thus incited to these pursuits; and that of the lower classes by his liberality. To this institution, more than any other circumstance, Mr. Roscoe attributes the sudden and astonishing proficiency which,

towards the close of the fifteenth century, was evidently made in the arts, and which, commencing at Florence, extended itself throughout Europe. Here Michael Angelo Buonarroti first imbibed that spirit which was destined to effect a reformation in the arts; while the study of architecture was encouraged by the numerous buildings which he erected, or induced others to erect, in Florence and its vicinity.

Lorenzo, though of free and perhaps licentious manners with respect to the female sex, was nevertheless an affectionate and attentive father. His eldest son Piero, designed for his successor, was sent, at the age of fourteen, to visit Rome. This close connexion with the pontiff was with a view to a favorite point of his ambition, the elevation of his second son Giovanni to the cardinalate, which, by incessant applications, he prevailed upon the pope to confer upon Giovanni, at the age of thirteen. 'It was,' says one of his biographers, 'a deserved consequence of this prostitution of ecclesiastical honors, that this cardinal, when arrived at the papedom, should, by his levity and extravagance, have given the immediate occasion to that defection from the church of Rome which has so much reduced her authority.' Giuliano afterwards became allied to the royal house of France, and obtained the title of the duke of Nemours.

'Having,' says he, 'now obtained the object of my cares, I trust I may be allowed to enjoy the sweets of leisure, to share the reputation of my fellow-citizens, and to exult in the glory of my native place.' This prospect of relaxation and happiness he was not destined to realise. In 1488 he lost his excellent wife; and in the year 1492 the gout, under which he labored, attacked him with such violence, that, while the attention of his physicians was employed in administering relief, he contracted a slow fever, and sunk, before his attendants suspected danger, into such a state of debility, as precluded all hopes of recovery. Having performed the offices of the church, he had a private interview with his son Piero, with whom he held a long and interesting conversation, preserved by Mr. Roscoe, on the state of the republic, the situation of his family, &c. Having composed himself, after his first interview at this time with Politiano, he enquired with great kindness why Pico of Mirandola had not once paid him a visit during his sickness. Politiano apologised for his friend, by assuring Lorenzo that he had only been deterred by the apprehension that his presence might be troublesome. 'On the contrary,' replied Lorenzo, 'if his journey from the city be not troublesome to him, I shall rejoice to see him.' Pico came to share, for the last time, the interest of his conversation. Lorenzo expressed his esteem for him in the most affectionate terms, and then changed the subject to lively topics; expressing, with some degree of jocularity, his wishes that he could have obtained a reprieve, until he could have completed his library. The interview was scarcely terminated, when the priest Savonarolo reminded him, that it was his duty to bear death with fortitude, 'with cheerfulness,' replied Lorenzo, 'if such be the will of God.' On taking a morsel of food, and being asked how he relished it, 'as a dying

man always does,' he said. Having affectionately embraced his friends, he became absorbed in meditation, till the energies of life gradually declining, and pressing to his lips a magnificent crucifix, he calmly expired, in the forty-fourth year of his age.

Mr. Roscoe sums up his character by describing him as 'a man who may be selected from all the characters of ancient and modern history, as exhibiting the most remarkable instance of depth of penetration, versatility of talent, and comprehension of mind.—Of the various occupations in which Lorenzo engaged, there is not one in which he was not eminently successful: but he was more particularly distinguished in those which justly hold the first rank in human estimation. The facility with which he turned from subjects of the highest importance, to those of amusement and levity, suggested to his countrymen the idea that he had two distinct souls combined in one body. Even his moral character seems to have partaken, in some degree, of the same diversity; and his devotional poems are as ardent as his lighter pieces are licentious. On all sides he touched the extremes of human character, and the powers of his mind were only bounded by that impenetrable circle, which prescribes the limits of human nature.'

MEDICI (Hypolitus de), natural son of Julian de Medici by a lady of Urbino, was early remarkable for the brilliancy of his wit and the graces of his person. Pope Clement VII., his cousin, made him cardinal in 1529; sent him as his legate into Germany to the court of Charles V., and reposed great confidence in him. He was highly instrumental in raising Paul III. to the papal see; but afterwards conspired against him, on being refused the office of legate to Ancona, which had been promised to him in the conclave. His plot being discovered he fled, and died at Itri in 1535, in his twenty-fourth year, and was supposed to have been poisoned. His house was an asylum for the unfortunate, and often also for those who were guilty of the blackest crimes. He had a natural son named Asdrubal de Medici, who was a knight of Malta. He never put on the habit of cardinal, except on occasions of public ceremony.

MEDICI (John de), on account of his bravery and knowledge of military affairs, was surnamed the Invincible. He was the son of John, or Jourdain, de Medici. He first carried arms under Laurence de Medici against the duke of Urbino, and afterwards under pope Leo X. Upon

the death of Leo he entered into the service of Francis I., which he quitted to follow the fortunes of Francis Sforza duke of Milan. When Francis I. formed an alliance with the pope and the Venetians against the emperor, he returned to his service. He was wounded in the knee at Governola by a musket-ball; and, being carried to Mantua, died in 1526, aged twenty-eight. He was above the middle stature, strong, and nervous. His soldiers, to express their grief for his loss, assumed a mourning dress and standards, which procured them the name of the black band. Cosmo the Great was his only son.

MEDICI (Alexander de), duke of Florence in 1530, a natural son of Laurence de Medici, surnamed the Younger, nephew of pope Clement VII. and duke of Urbino. He owed his elevation to the intrigues of his uncle, and to the arms of Charles V., who, having made himself master of Florence after an obstinate siege, conferred the sovereignty of it on Alexander, and afterwards gave him in marriage Margaret of Austria, his natural daughter. According to the terms of capitulation granted to the Florentines, the new duke was to be only hereditary doge, and his authority was tempered by councils; which left them at least a shadow of their ancient liberty. But Alexander, who felt himself supported by the emperor and the pope, was no sooner in possession of his new dignity, than he began to govern like a tyrant. His excesses became at last so intolerable that a conspiracy was formed against him, and he was assassinated by his relation Laurence de Medici, on the 6th of January, 1537, in the twenty-sixth year of his age.

MEDICI (Cosmo de), surnamed the Great, succeeded his relation Alexander after some struggle with the Florentines, who failed in their attempt to recover their liberty: but his government was so mild and just that they hardly felt the loss. He joined Charles V. against the French, and as a reward for his services, the emperor, to the duchy of Tuscany, added Piombino, the isle of Elba, and other states. Cosmo soon after received from pope Pius IV. the title of grand duke. He died in 1574, aged fifty-five, after governing with equal wisdom and glory. In 1562 he instituted the military order of St. Stephen. His son, Francis-Mary, who died in 1587, was the father of Mary de Medici, the wife of Henry the Great and of Ferdinand I., who died in 1608.



JEAN DE DINTEVILLE.



BAYARD.



THOMAS R. A.



WILLIAM BANTIER.



HARNEVEER.



JOHN EASTWICK.



JOHN DE MONT.



BARONIUS.



CAROLUS DE BARON.



REMONDINO.



DUKE OF BERWICK.



BEID.



BERNINI.



JAMES BERNOLLI.



GIOVANNI BERZONI.



BENTLEY.



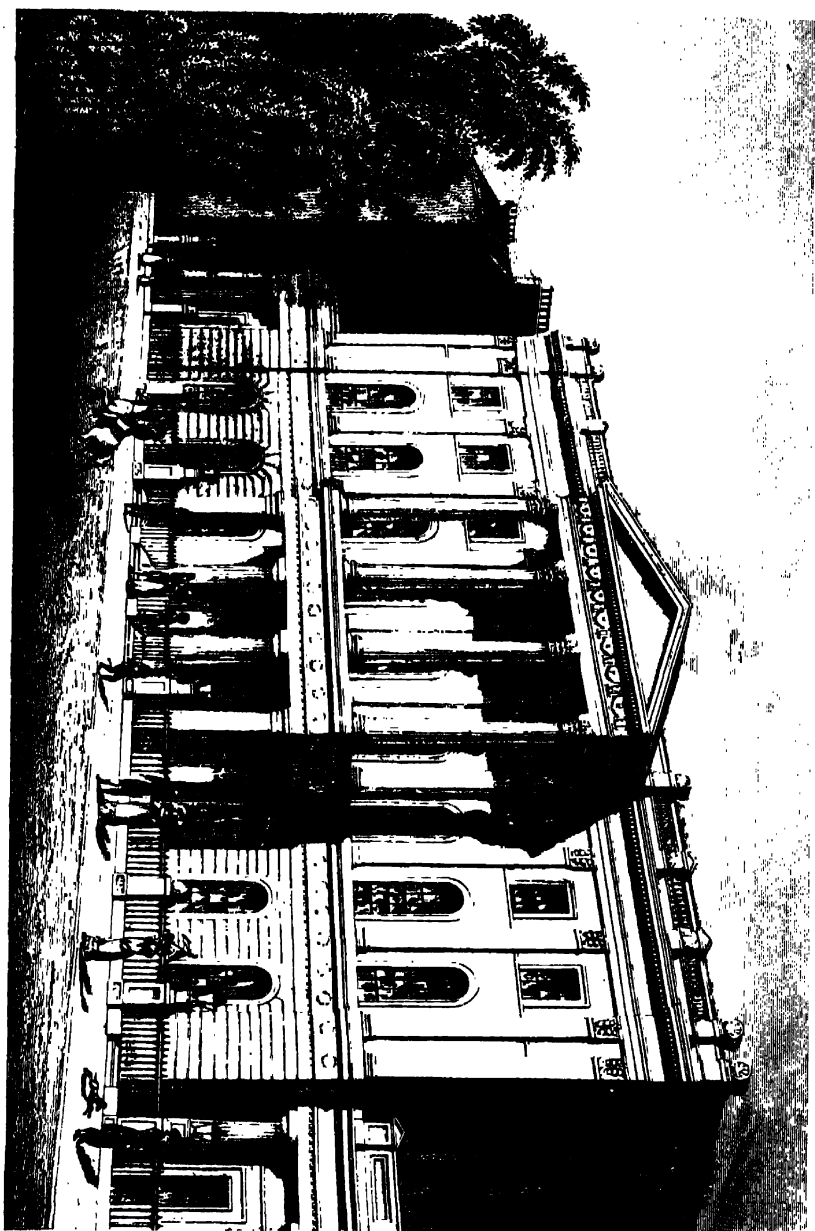
JOHN BERNOLLI.



RIGHT BENTLEY.

LONDON INSTITUTION.

J. Sturt, sculp.



ZOOLOGY.

Class Reptilia

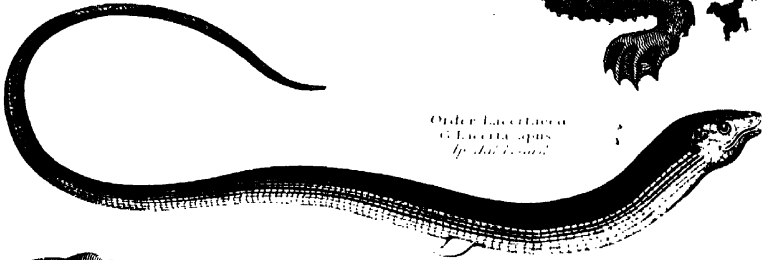
Order Testudines
Genus Testudo
Testudo



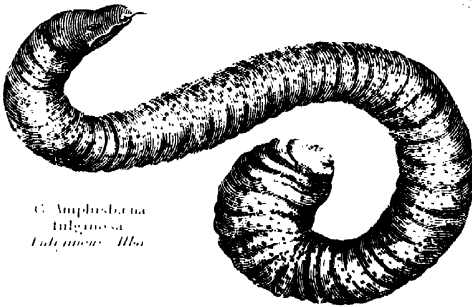
Order Batrachia
Genus Rana
Rana



Order Lacertacea
Genus Lacerta
Lacerta



Genus Amphibama
Amphibama

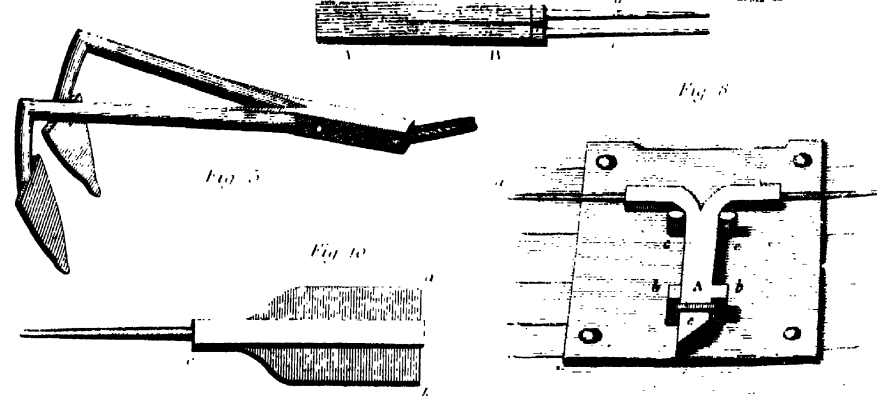
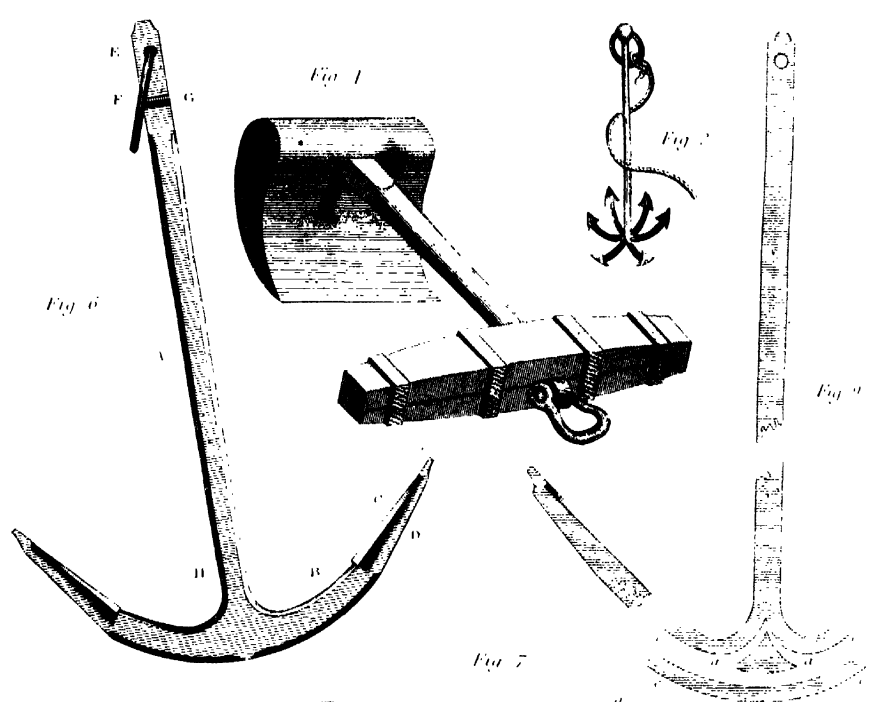
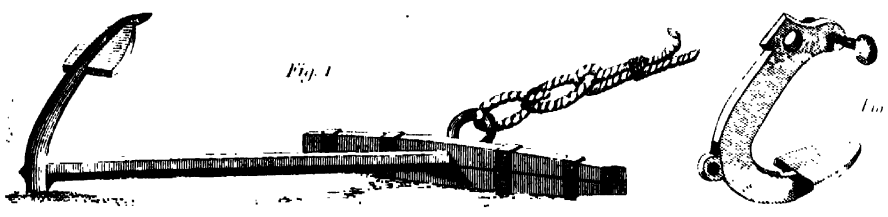


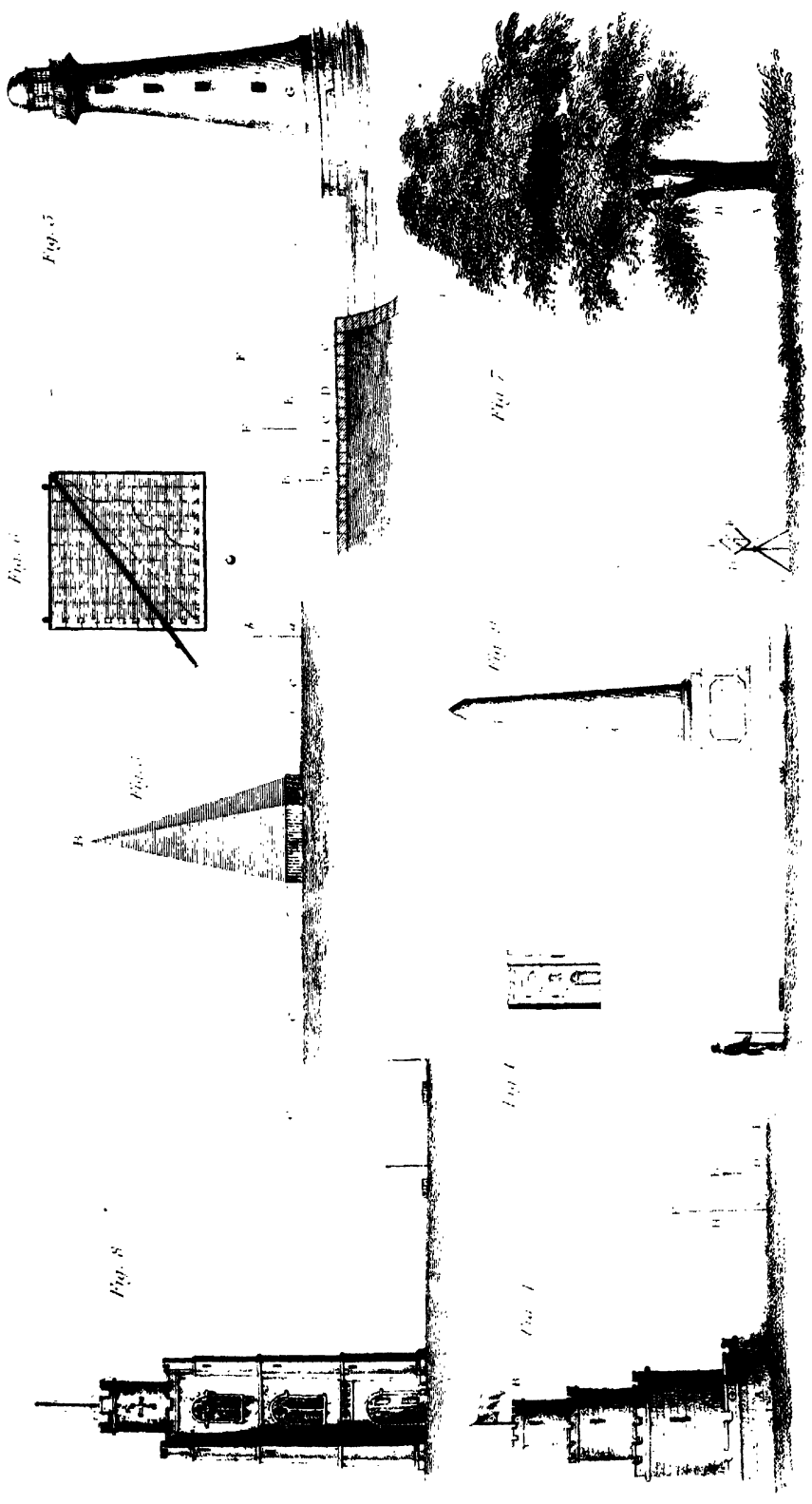
Order Lacerto
Genus Lacerta
Lacerta



Genus Acrochordus
Acrochordus





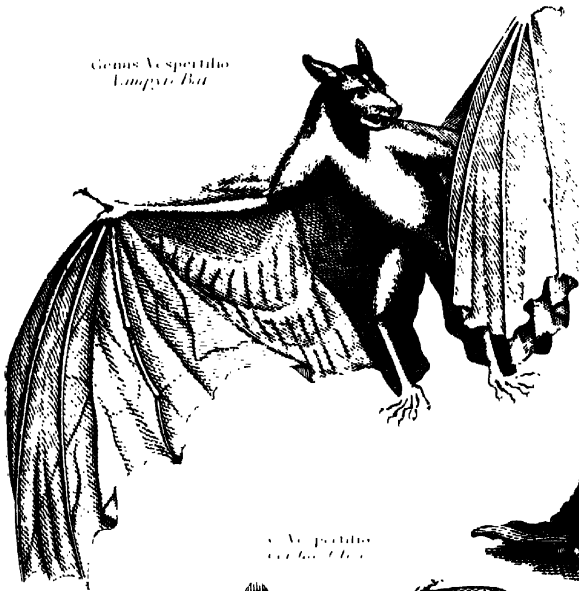


J. Shaw sculp

London: Published by Thomas Agnew & Sons, 15, Broad St.

ZOOLOGY.
 Class Mammalia
 ORDER CHIROPTERA

Genus *Vesperugo*
Lampyris Bat



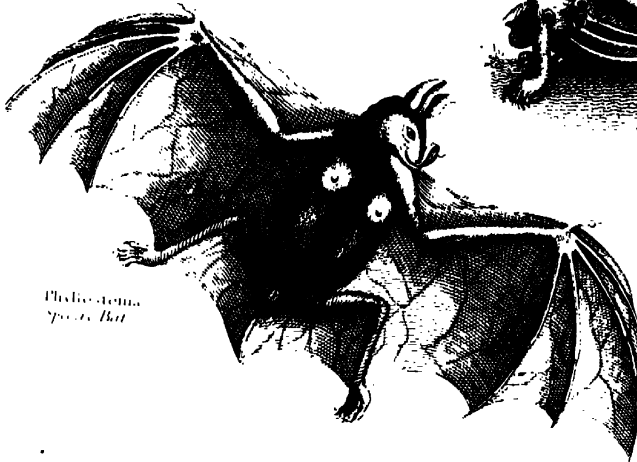
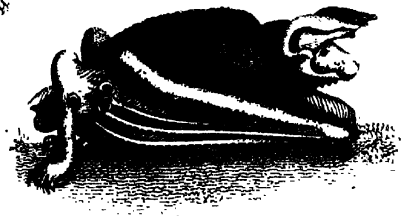
Genus *Fledermaus*
Little Flying Bat



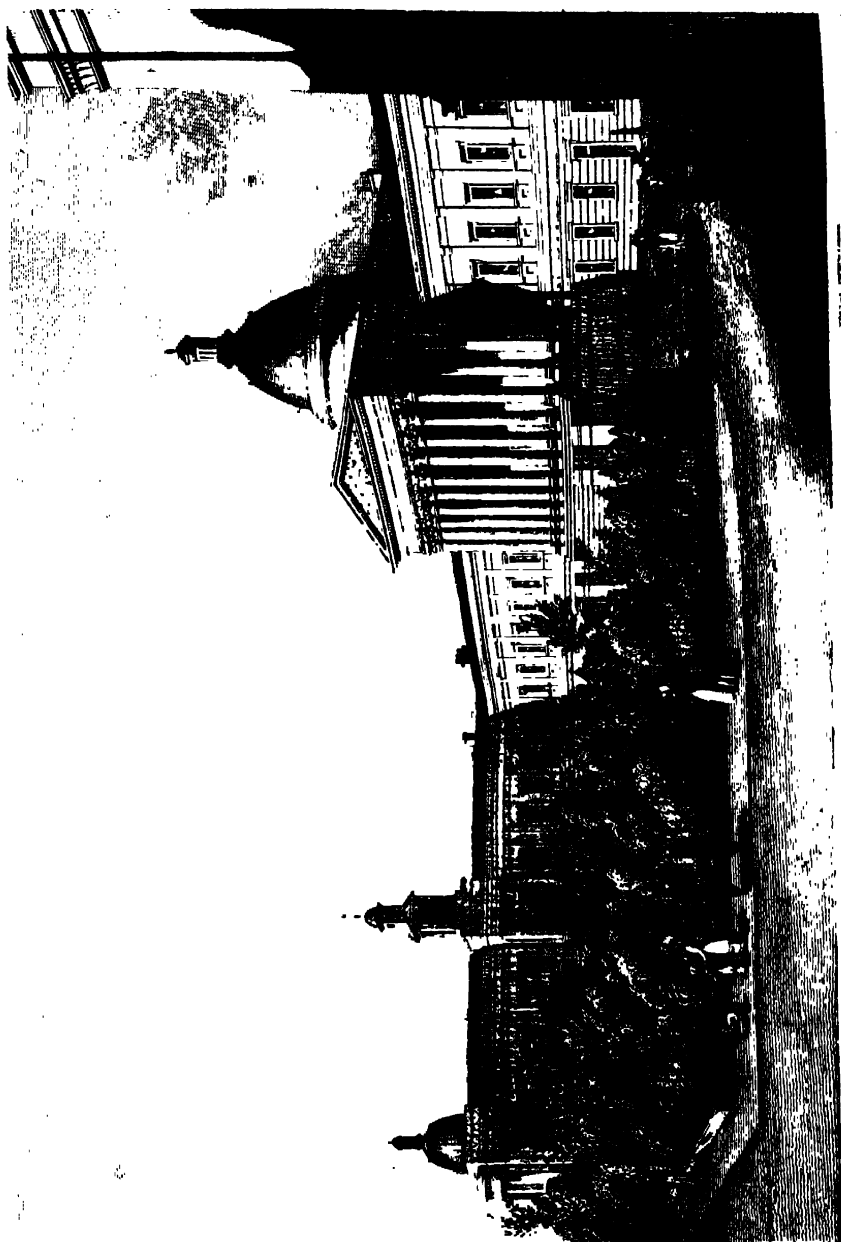
Genus *Vesperugo*
Little Flying Bat



Genus *Vesperugo*
Little Flying Bat



Genus *Phyllostoma*
Spotted Bat





S. GARDINER.



VASCO DE GAMA.



GAZA.



GAY.



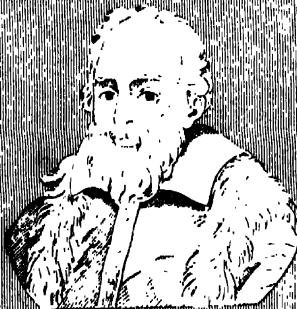
GARRET.



G. GASCOIGNE.



GARD.



GAUDRE.



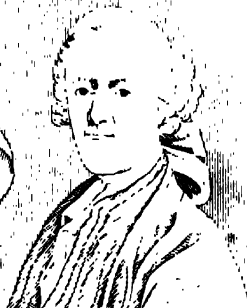
J. GARDINER.



S. GENNER.



C. GESTER.



GILLERT.



G. GERARD.



N. GERARDE.



EL. GENTILESCHI.



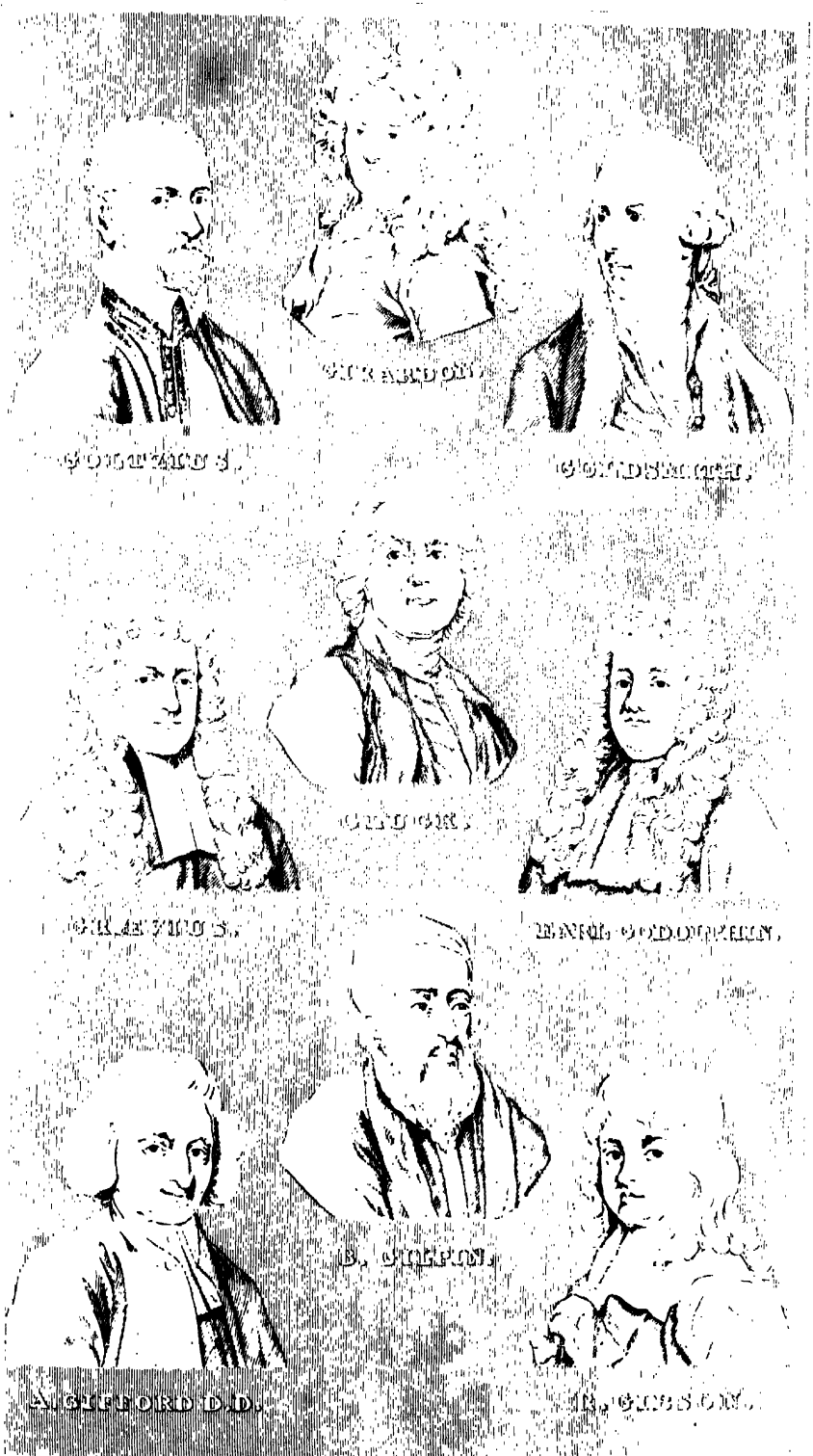
J. GIBBS.



G. GIBBONS.



GIBBON.



GOUTAUX.

SIR ARDON.

GONDSMITH.

GORLEVIDE.

GUDOK.

HENRI GODDARD.

ALSTFORD D.D.

B. GIBSON.

B. GIBSON.



GRAY.



GROSE.



GUSTAVUS I.



GROTIVS.



GRONOVIVS.



GREVILLE.



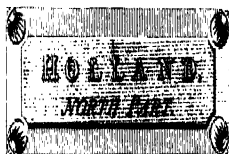
GRESHAM.



GUSTAVUS II.



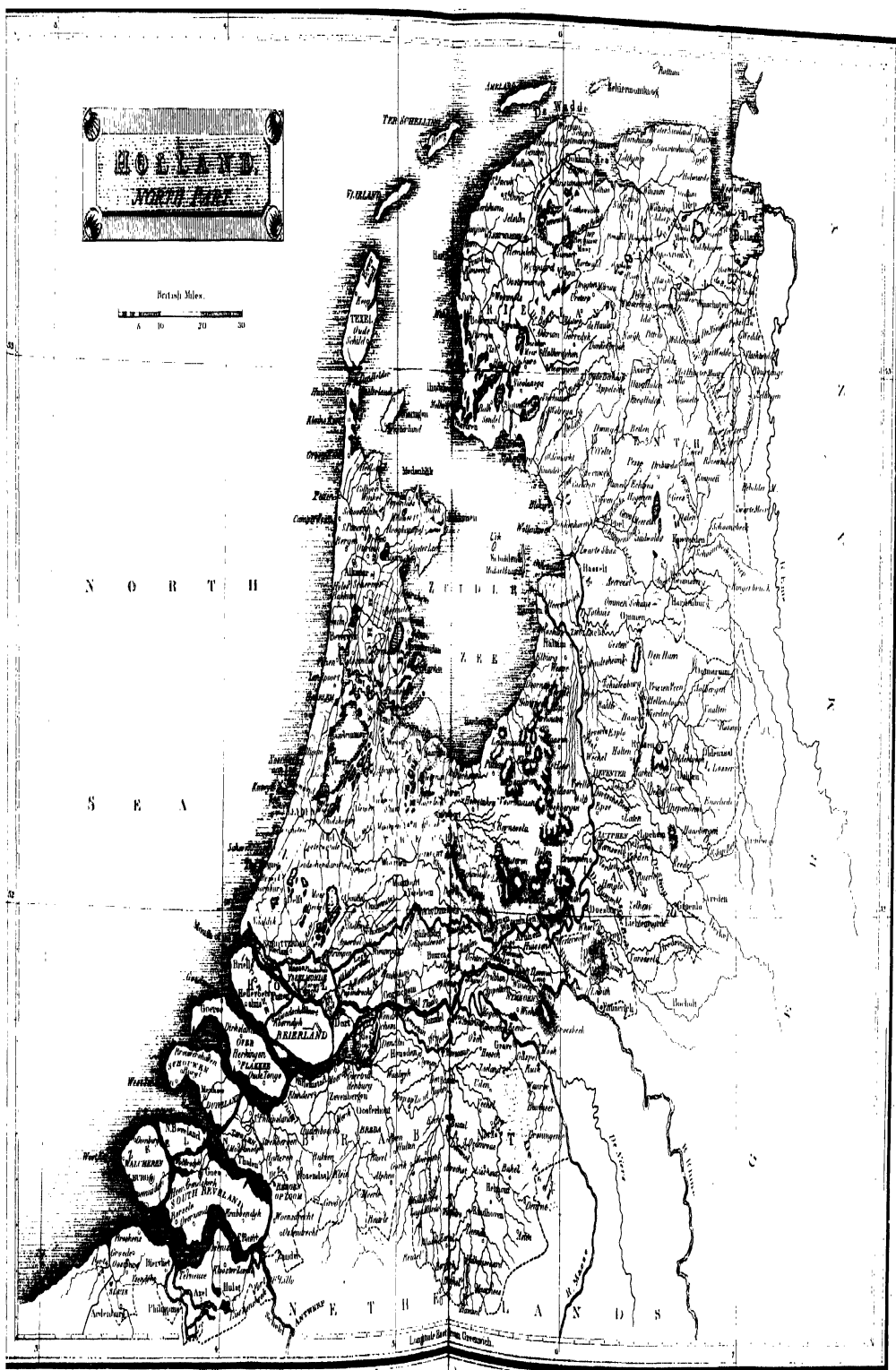
GREGORY XIII.



British Miles.
0 10 20 30

N O R T H

S E A





FORTIFICATION,

Fig. 2.

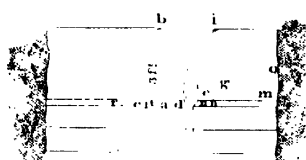


Fig. 3.

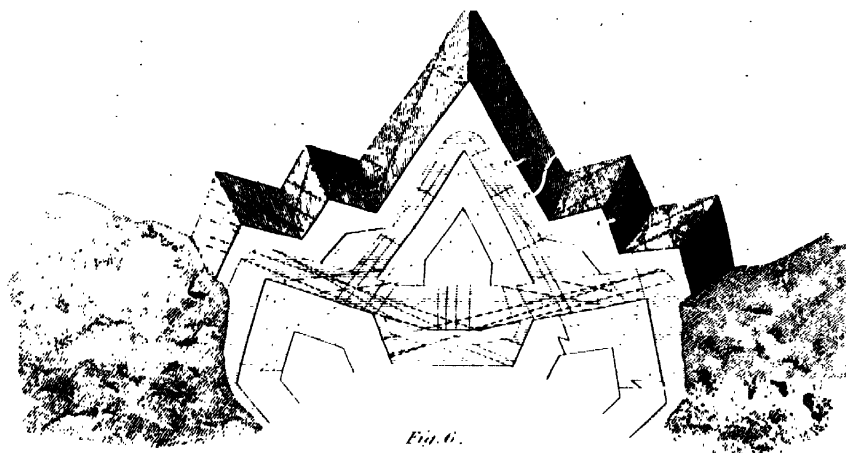
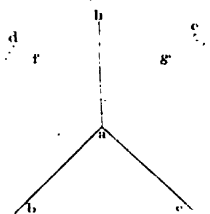


Fig. 6.

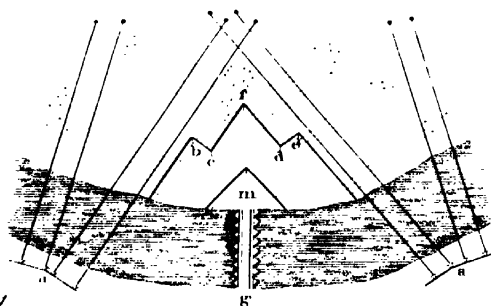


Fig. 4.

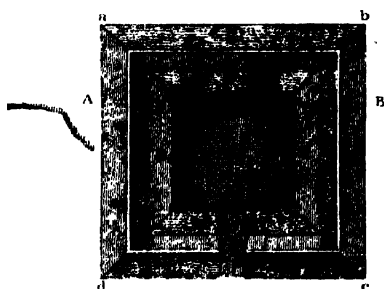


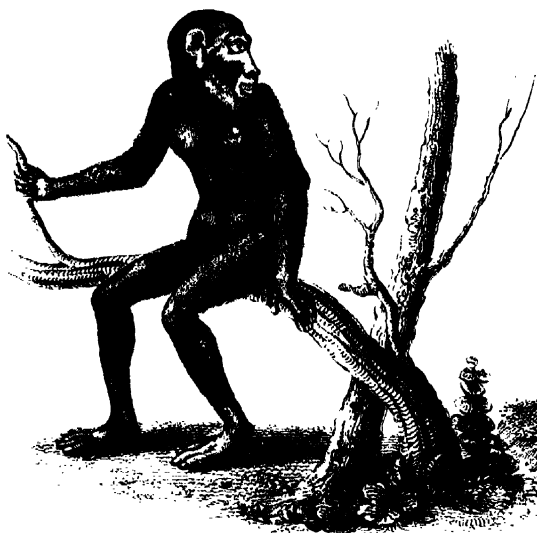
Fig. 5.



ZOOLOGY

Class Mammalia
ORDER QUADUMANI.

Genus Pithecia
Simia satyris
Oran Outang



Genus Hylobates
Long armed Gibbon



Genus Haplorhina
Simia leucurus
The Striped Monkey



Genus Cercopitheca
Simia mona
Goat Monkey



Genus Haplorhina
Simia argenta
Two Monkeys



Lemur catta
Ring Tailed Mongoose

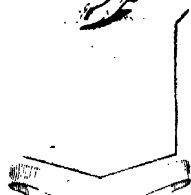


Lemur mongoos

King's Arms

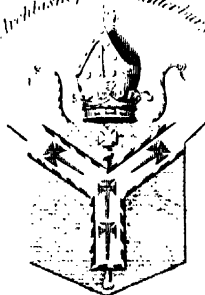


Gentry



Young

Archbishop of Canterbury

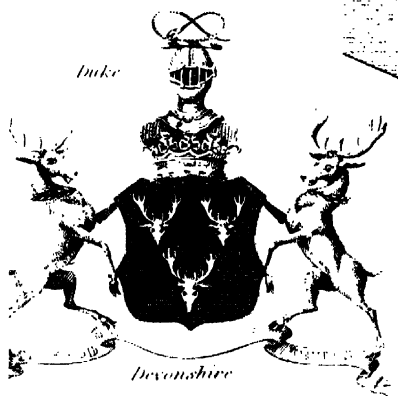


Baronet



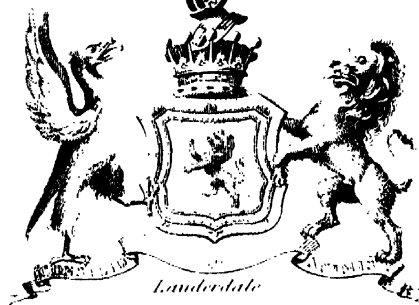
*Douglas
all the world's
a stage*

Duke



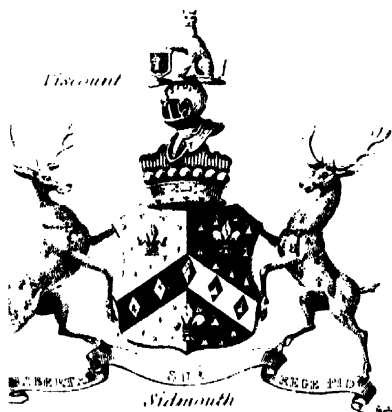
Devonshire

Earl



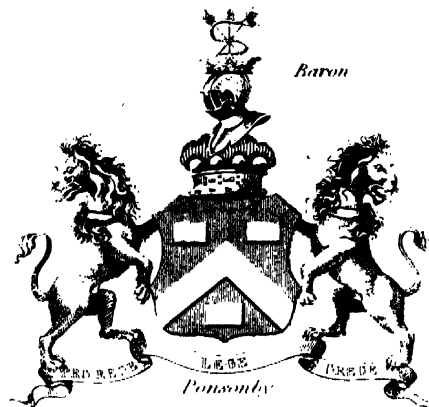
Lauderdale

Viscount



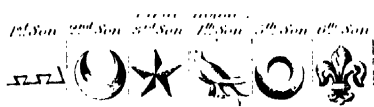
Sidmouth

Baron

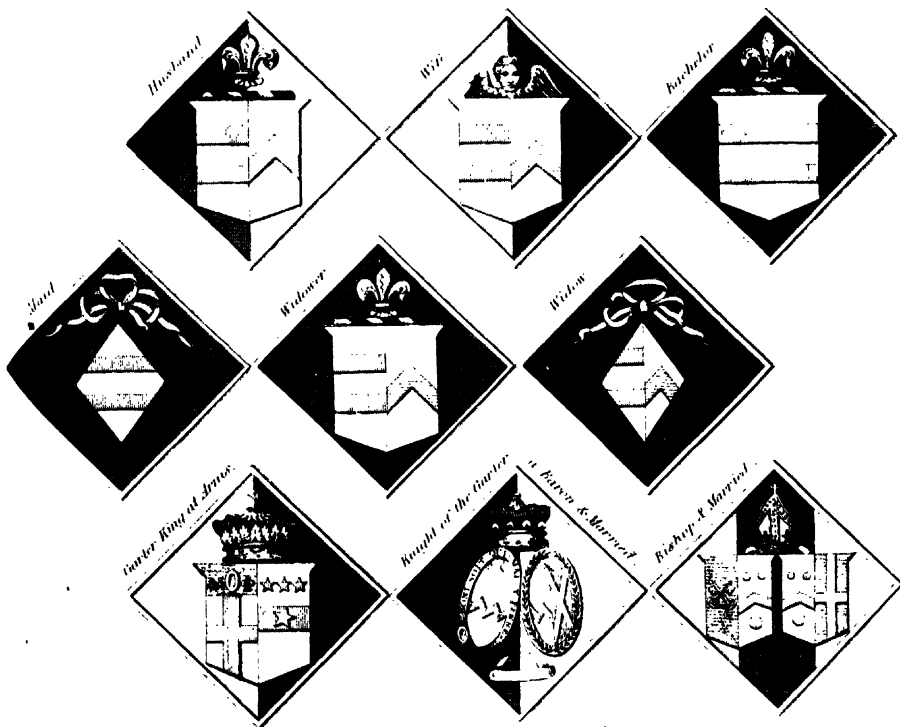
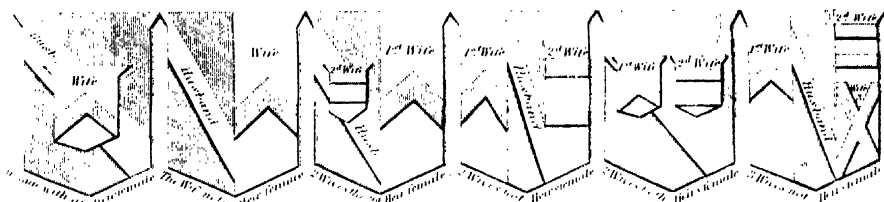


Ponsonby

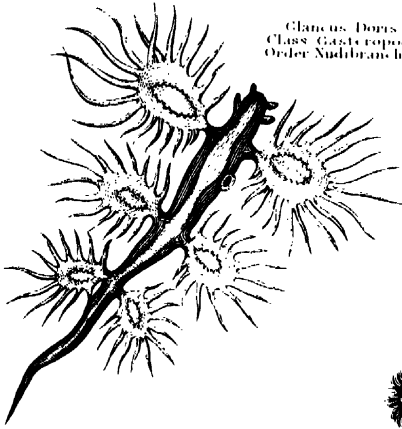
DISTINCTIONS OF HOUSES.



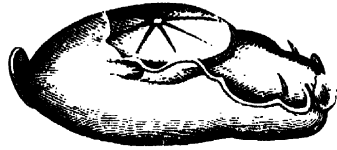
BLAZONING OF HATCHMENTS.



ZOOPHYTA.



Clancus Doriai
Class Gasteropoda
Order Nudibranchia

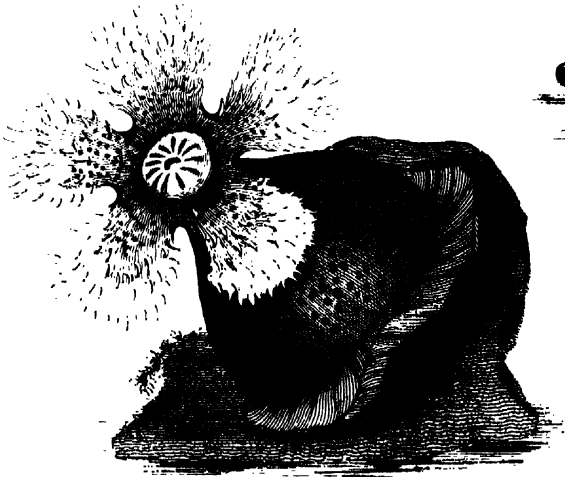


Aplysia depilans

Aphrodita aculeata
Class Annelida
Order Dorsibranchia



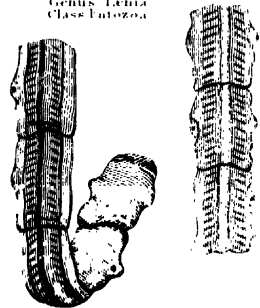
Vittina dianthus
Class Aschelminths
Order Fissa



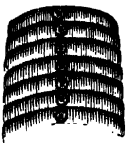
Nais Serpentina
Class Annelida
Order Alciarchia

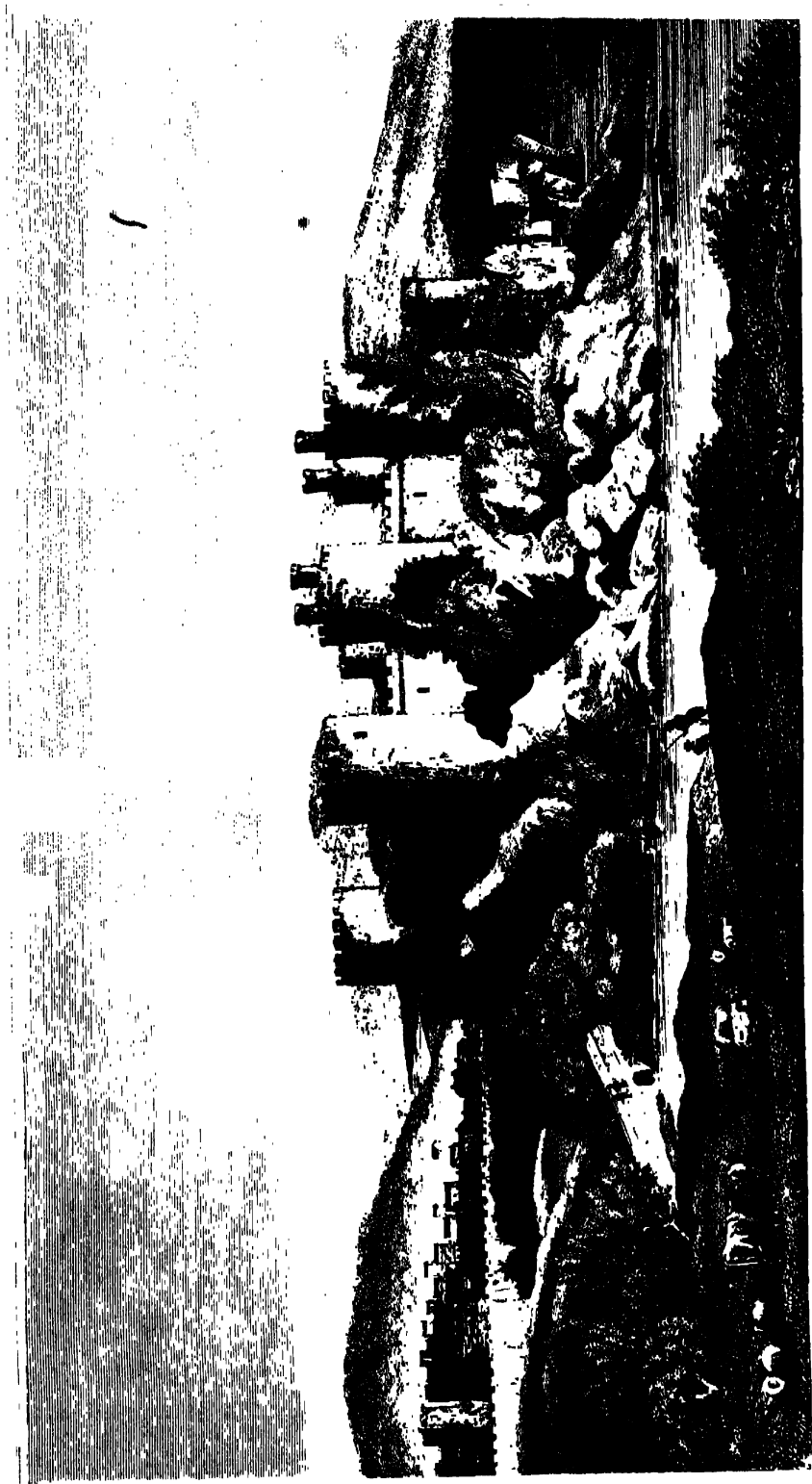


Genus Tenua
Class Entozoa



Genus Onchidium
Class Gasteropoda
Order Pulmona





1 Starry sculp

CONWAY CASTLE.



1. S. 100. 100. 100.

EDINBURGH CASTLE.

Published by Thomas Scott & Co. Edinburgh.

